

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
WESTERN DIVISION

MARJORIE SMITH, etc.,	:	
	:	
Plaintiff,	:	Case No. 3:95cv445
	:	
vs.	:	JUDGE WALTER HERBERT RICE
	:	
UNITED STATES OF AMERICA,	:	
et al.,	:	
	:	
Defendants.	:	

FINDINGS OF FACT AND CONCLUSIONS OF LAW; EXPANDED
OPINION; JUDGMENT TO BE ENTERED IN FAVOR OF DEFENDANTS
AND AGAINST PLAINTIFF; TERMINATION ENTRY

This litigation arises out of the November 24, 1993, crash of a Piper Arrow IV, PA 28 RT-201 aircraft ("Piper Arrow") at the Portage County Airport, near Ravenna, Ohio, which took the life of Donald Smith ("Smith"). The Plaintiff, Smith's surviving spouse and the Executrix of his Estate, seeks to recover from the Defendant, United States of America ("Defendant," "United States" or "Government"), for the allegedly tortious actions of its employees.¹ In particular, the Plaintiff contends that the employees of the Government negligently maintained

¹The Plaintiff also asserted claims against other Defendants. However, this Court previously dismissed the Plaintiff's claims against the other Defendants or entered summary judgment in their favor. See Docs. # 71 and #157. Therefore, only the Plaintiff's claims against the United States remained for trial.

and inspected the Piper Arrow, which permitted carbon monoxide to travel into its cabin, causing Smith to become impaired and the plane to crash. In contrast, the Government maintains that the accident was caused when Smith became disoriented, while attempting to return to the Portage County Airport, in order to close the top latch on the right cabin door of the aircraft, which he had inadvertently left unlatched before taking off.

The Plaintiff's claim, under the Federal Tort Claims Act ("FTCA"), 28 U.S.C. §§ 1346(b) and 2671, et seq., was tried to the Court.² The parties subsequently filed voluminous post-trial memoranda and proposed findings of fact and conclusions of law. Final arguments were had some eight months after the conclusion of the trial. Pursuant to Rule 52 of the Federal Rules of Civil Procedure, the Court now makes its Findings of Fact. In an Opinion which follows, the Court rules on the parties' objections to the introduction of certain exhibits and deposition testimony, as well as addressing the Plaintiff's request that the Court draw a negative inference against the United States as a result of its alleged spoliation or destruction of evidence and her request that the Court strike and disregard testimony of some of the Government's expert witnesses. Finally, the Court will set forth its Conclusions of Law.³

²Jury trials are prohibited in actions under the FTCA. See 28 U.S.C. § 2402.

³The Plaintiff has argued that the testimony of certain of the Defendant's expert witnesses must be disregarded, because that testimony does not comply with the standards established for the admissibility of same by the Supreme Court in Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993), and its progeny. Plaintiff moved to exclude that testimony prior to trial. The Sixth Circuit has held that, although a Daubert hearing is not required, "a district court should not make a Daubert determination when the record is not adequate to the task." Jahn v. Equine Services, PSC, 233 F.3d 382, 393 (6th Cir. 2000). Since this case was tried with the Court sitting as finder of fact, the Court decided to permit the

I. Findings of Fact

A. The Parties

1. The Plaintiff is the surviving spouse of Donald Smith ("Smith") and the duly appointed Executrix of his estate. The Plaintiff and Smith were married in 1959.

2. Smith was a licensed pilot and flight instructor. He practiced his trade as an independent contractor, with aircraft operated by the Aero Club at Wright-Patterson Air Force Base ("WPAFB").⁴ The Aero Club is a non-appropriated fund instrumentality of the Defendant.

B. The Crash Occurring on November 24, 1993

3. On November 24, 1993, Smith flew the Piper Arrow, one of the aircraft which was operated by the Aero Club,⁵ from WPAFB to the Ohio State University Airport, located in Columbus, Ohio,. At that facility, he was joined by a student pilot,

Government's expert witnesses to testify during the trial and directed the Plaintiff to address the admissibility of that testimony in her post-trial submissions, rather than conducting time-consuming and potentially duplicative Daubert hearings. The Court indicated that it would strike and disregard the testimony by any expert whose opinions did not comply with the standards established in Daubert.

⁴WPAFB is located in Montgomery and Greene Counties, Ohio.

⁵That aircraft was owned by General Spires, who had leased it to the Aero Club.

Dr. Edward Rugh ("Rugh"), to whom Smith was providing lessons.⁶ Smith and Rugh then flew that aircraft from Columbus to the Portage County Airport, located in Ravenna, Ohio. During the flight, Rugh sat in the left front seat, while Smith was seated in the right front seat.⁷

4. Smith and Rugh flew to Ravenna using instrument flying rules ("IFR").⁸ Since one purpose of the flight was to allow Rugh,⁹ who had little experience at flying an airplane under IFR, to become a more proficient pilot, he flew the plane most of the way to Ravenna. During the flight, Rugh noticed a discrepancy between certain of the plane's instruments, to wit: the attitude indicator and the turn and bank indicator.¹⁰ Smith told Rugh to ignore the former and to concentrate on the latter.

5. Before they reached Ravenna, Smith took over the controls of the plane and landed it at around 5:15 p.m. The landing was uneventful.

⁶Rugh, a member of the Aero Club, paid the rental charges for the aircraft.

⁷The pilot of an aircraft normally sits in the left front seat; however, it is customary for an instructor to use the right front seat and to permit his student to occupy that on the left.

⁸When a pilot flies an airplane under IFR, he uses instruments to navigate and to orient the aircraft.

⁹Rugh was also traveling to Ravenna in order to attend the funeral of his mother-in-law.

¹⁰At one point, the attitude indicator showed a bank to the right while the turn and bank indicator showed a bank to the left.

6. Smith remained at the Portage County Airport for approximately 45 minutes. While at that facility, Smith added oil to the Piper Arrow, after having checked the oil level. In addition, he spent between 20 and 30 minutes inside Chinn Aviation, while at that Airport. Therein, the proprietor used kerosene space heaters, which caused Smith to be exposed to carbon monoxide.

7. Although he would travel alone on his return trip to WPAFB, Smith once again sat in the right front seat when he reentered the Piper Arrow, even though the pilot of an aircraft normally flies from the left front seat. Flying from the former is more difficult than flying from the latter, because the primary instruments are farther from an individual sitting in the right front seat, and there is a greater angle between those instruments and such an individual.¹¹ The problem of viewing the primary instruments was magnified by the limited lighting in the Piper Arrow and the fact that it was growing dark outside.

8. The two cabin doors on the Piper Arrow had both upper and lower latches. Prior to departing from the Portage County Airport, Smith successfully fastened the lower latch on the right cabin door; however, he failed to close the upper latch on that cabin door, before taking off.

9. At the time of Smith's departure from the Portage County Airport, the weather conditions at that facility required that Smith obtain clearance. In particular, the

¹¹The instruments located on the left side of the cabin of the Piper Arrow included the turn and bank indicator, the altimeter, the air speed indicator and the heading indicator.

sky was low overcast, meaning that Smith would be in the clouds shortly after take off and would, at that point, be required to fly with IFR. Therefore, before taking off, Smith communicated with personnel in the control tower, which was operated by the Federal Aviation Administration ("FAA"). Smith's communications with the control tower were normal.

10. At approximately 6:00 p.m., Smith took off from the Portage County Airport, in order to return to WPAFB. Almost immediately, the Piper Arrow entered the clouds. Within a matter of minutes, Smith's flight ended when the plane crashed.

11. At approximately 6:00 p.m., Gerald Novak ("Novak"), an aircraft mechanic, was working in a hanger at the Portage County Airport. He heard the engine of an airplane making power changes. In other words, the engine was repeatedly slowed, after which it was brought back to its normal speed. Novak went outside to investigate.¹² Because of the low overcast clouds, Novak was not able to see the plane, although he did hear one or two additional power changes. When the plane came through the clouds, Novak saw that its landing light had been turned on. Although the plane was level, it did not appear to Novak to have any forward motion. It also appeared to be falling vertically. Shortly thereafter, Novak saw the nose of the plane tip toward the ground and the plane fall to the ground nose first.

¹²Novak described the sound being as if the pilot of the plane were looking for the airport. Novak explained that on an overcast day, a pilot attempting to land will see the runway and reduce the power to the aircraft, only to go into a cloud and increase power for fear of missing the runway.

12. The Piper Arrow first made contact with trees, then with a hanger and finally with the ground. The force of the crash caused the plane's engine to be torn from the aircraft, once the plane had come into contact with the ground.

13. Smith was killed instantly when the Piper Arrow impacted the ground.

14. As indicated above, the upper latch on the cabin door of the Piper Arrow was not latched when Smith took off from the Portage County Airport. As a consequence, the door came partially open when the plane took off, and Smith was distracted from piloting the Piper Arrow by the noise of the wind and buffeting by it caused by the partially open door.

15. The upper right door latch is located above the ear of the person sitting in the right hand front seat, where Smith was seated. According to the instructions in the Piper Arrow Manuel, one must turn his head and body away from the instrument panel in order to close the upper right hatch. Attempting to close that hatch during flight, while seated in the right front seat, can cause a pilot flying on instruments to become disoriented.

16. Rather than closing the door while in flight, Smith was attempting to return to the Portage County Airport, in order to land and accomplish that task, when the Piper Arrow crashed. In addition, he had become disoriented, because he was flying on instruments due to the weather conditions, when he attempted to close the upper hatch on the right cabin door.

C. The Engine and Exhaust System of the Piper Arrow

17. The Piper Arrow was powered by a four-cylinder engine, manufactured by Textron Lycoming ("Lycoming"). The four cylinders are numbered 1 through 4. Cylinder 1, from the perspective of the pilot, is located on the right side of the engine closest to the propeller and, thus, is also called the right front cylinder. Cylinder 2, also called the left front cylinder, is located on the left side of the engine, closest to the propeller. Cylinder 3, also referred to as the right rear cylinder, is located on the right side of the engine, closest to the firewall, which separates the engine compartment from the cabin. Cylinder 4, also referred to as the left rear cylinder, is located on the left side of the engine, closest to the firewall.

18. Each cylinder has an exhaust port, through which the exhaust gases generated within the cylinder are discharged. Attached to each exhaust port is one end of an exhaust stack.¹³ The exhaust stack attached to each cylinder has a unique size; therefore, they are not interchangeable. An exhaust stack is connected to an exhaust port through the use of a flange on the stack and two studs on the cylinder. Nuts are placed on the two studs, in order to secure a stack to a port. An exhaust gasket is placed between each stack and port, in order to ensure that exhaust gases do not leak from the connection between them.

¹³Given that the engine of the Piper Arrow has four cylinders, it is also equipped with four exhaust stacks.

19. The other end of each exhaust stack (i.e., that which is not connected to an exhaust port) is attached to one of the engine's two mufflers.¹⁴ Each muffler is, in turn, attached to one of the aircraft's two stacks; therefore, two exhaust stacks are attached to each muffler. Thus, exhaust gases generated in one of the four cylinders travel therefrom through an exhaust port, where the gases move to an exhaust stack. From an exhaust stack, gases move to a muffler, through which they exit the aircraft.

D. Maintenance and Inspection of the Piper Arrow

20. During September and October, 1993, shortly before the accident, the Piper Arrow underwent a combined 100-hour and annual inspection.¹⁵ The inspection was conducted by John Webber ("Webber"), an experienced aircraft mechanic employed by the Aero Club.¹⁶

21. That inspection entailed, among other steps, sending all four cylinders of that aircraft's engine to Clydesdale Aircraft Corporation ("Clydesdale") for maintenance. In addition, the two mufflers, the top and bottom muffler shrouds and the right rear and right front exhaust stacks were sent to Aircraft Exhaust System, Inc. ("Aircraft

¹⁴The mufflers are partially covered by shrouds. Each shroud has a top and a bottom.

¹⁵The Aero Club inspected its aircraft every 100 hours of flight time and also annually. When the two inspections fell on or about the same date, they were conducted together, as was the case with the Piper Arrow during September and October, 1993.

¹⁶Webber had been given awards for excellence by the Aero Club.

Exhaust”), for maintenance during the inspection. Webber did not have a problem removing the exhaust system.

22. After Clydesdale had performed maintenance on the cylinders, Webber, with the assistance of others, replaced them in the Piper Arrow’s engine. He and others also reinstalled the exhaust system, after Aircraft Exhaust had completed its work on that system.

23. During the process of removing and reinstalling the cylinders, no one made the two gouges that appear on cylinder number one, the right front cylinder.¹⁷

Additionally, those gouges were not caused by the removal or reinstallation of the exhaust system. Rather, the gouges, found on cylinder number one after the accident, were caused by the crash of the plane, nose first into the ground.

24. The exhaust system was reinstalled on the Piper Arrow’s engine, after the 100–hour/annual inspection, without using a torque wrench. Although such a wrench should have been used, carbon monoxide did not migrate into the cabin of that aircraft as a result.

25. After the 100–hour/annual inspection had been completed, Webber signed off on the 100–hour inspection, by certifying that the airframe of the Piper Arrow had been inspected in accordance with the requirements of a 100–hour inspection and

¹⁷Plaintiff contends that the carbon monoxide, which she asserts caused her husband to lose consciousness and control of the Piper Arrow, escaped from the exhaust system through the gouges on cylinder number one.

that the plane was airworthy. However, since Webber was not authorized to certify the results of an annual inspection, the Aero Club retained Bernard Brunner ("Brunner"), an independent contractor, to certify the annual inspection. After he had completed his inspection,¹⁸ Brunner gave his endorsement to that inspection. While performing his task, Brunner visually examined the cylinders and did not notice gouges on any of them.

26. Although not required by FAA regulations, the Aero Club had Carlos Leach ("Leach"), an aircraft mechanic employed by the Aero Club with approximately 50 years experience, conduct a 50-hour inspection of the Piper Arrow two days before the accident.¹⁹ During his inspection, Leach took the top cowling of the aircraft off, which permitted him to observe the cylinders and the exhaust stacks of the Piper Arrow. If there had been gouge marks on cylinder number one, Leach would have been able to see them. He did not, however, see any such marks or any exhaust leaks.

E. Damage to the Piper Arrow as a Result of the Accident

27. The Piper Arrow crashed nose down, which caused extensive damage to its engine. In particular, the exhaust system suffered extensive deformation and destruction. The number one or right front cylinder was also damaged

¹⁸Brunner's role was to inspect the aircraft again. Therefore, since the 100-hour and annual inspections were completed at the same time, the Piper Arrow was inspected twice shortly before the accident.

¹⁹Leach was assisted by Joe Phillips.

significantly, including having the two gouges placed on it as a result of the accident. In addition, one of the exhaust port studs or bolts was sheared off, a piece of the cylinder was broken, and the cooling fins were deformed. The exhaust stack, including the flange attached to cylinder number one, was severely distorted by the crash. The studs or bolts were sheared off, as a result of the exhaust stack attached to that cylinder being bent backyards and pulled away from the exhaust port by the force of the crash. That, in turn, caused the flange to buckle, resulting in one of the port studs or bolts being sheared off.

28. The two gouges on cylinder number one were caused when one of the port studs or bolts sheared off and pushed against the inner sealing rings of that cylinder, causing them to buckle. As that occurred, the rings were forced onto one side of cylinder number one, causing the two gouges.

29. Carbon monoxide did not leak from any cylinder, seal, exhaust port, exhaust stack or muffler.

30. The above finding of fact is supported by a number of subsidiary findings. First, the cylinder was made of aluminum, which is softer than stainless steel out of which the rings had been manufactured. That fact raises an inference that the gouges were caused by a ring during the crash, which means that the gouges did not exist prior to the accident and that, therefore, could not have served as a channel through which carbon monoxide could have leaked. Second, the curvature of the rings nearly replicates the location of the gouges on cylinder number one,

which reinforces the above inference. Third, the dull appearance of the gouges at the time of trial was caused by the oxidation that occurred between the crash and the trial. Novak, who assisted the National Transportation Safety Board ("NTSB") in its on-site investigation of the crash, saw the gouges the day after the crash and indicated that the gouges were bright and shiny, which demonstrates that the gouges were of very recent origin and that the engine had not been running while the gouges were on cylinder number one. Fourth, a small aluminum lip projects from one of the gouges into the open exhaust port. Edward Holmes ("Holmes"),²⁰ one of the Government's Expert witnesses, gave further support to the Court's finding that the gouges were caused during the crash, with his uncontroverted testimony that, if the protruding lip had been in existence when the cylinder was reinstalled after the completion of the 100-hour/annual inspection, the extreme heat from the combustion gases would have melted it. Fifth, the gouges cut through circular grooves made on the cylinder by the exhaust gasket with its concentric sealing rings, meaning that the grooves had to have been made after the exhaust gasket had been reinstalled upon the completion of the 100-hour/annual inspection. Sixth, the Piper Arrow, including its engine, cylinder number one, the exhaust stacks, the exhaust ports, the mufflers and the heater shroud do not show signs of an exhaust leak. If there had been such a leak at any of those locations, a creamy white film caused by the lead oxide in aviation fuel would have been in existence. Seventh, the gouges are located inside of where the gasket would have been. Therefore, the gasket would have prevented a carbon monoxide leak, even if the gouges had been made before the crash. Eighth, the report of the individual in

²⁰ Parenthetically, other parts of Holmes' testimony supported that given by Novak.

charge of the investigation for the NTSB, Margaret Napolitan ("Napolitan"), wrote that the engine of the Piper Arrow had been examined at the accident site on November 25, 1993, one day after the crash, and shipped to Lycoming's facility at Williamsport, Pennsylvania, where it was disassembled. No anomalies were revealed as a result. Ninth, Thomas Duddy ("Duddy"), who has investigated in excess of 200 accidents in his career, disassembled and examined the engine of the Piper Arrow at Napolitan's request. He saw no evidence of an exhaust leak.

31. Although part of an exhaust stack and gasket are missing, those missing parts were properly installed and functioning at the time of the crash.

32. The black stains on cylinder number one and its exhaust port were caused by oil or oxidized iron or steel, rather than by a carbon monoxide leak.

33. Kevin Shope ("Shope") flew the Piper Arrow on two occasions after the completion of the 100-hour/annual inspection, without smelling exhaust fumes and/or suffering any symptoms of exposure to carbon monoxide. Rugh, who flew with Smith from the Ohio State Airport in Columbus to the Portage County Airport, did not smell exhaust fumes and/or suffer from any symptoms of exposure to carbon monoxide. Indeed, no other person flying in the Piper Arrow during that period reported that he or she smelled exhaust gases and/or suffered from exposure to carbon monoxide.

34. Even if carbon monoxide had leaked from the exhaust system of the Piper Arrow, which it did not, that gas would have been dissipated by air flowing over and around the engine before it could enter the cabin and overcome an individual therein.²¹

35. All of the foregoing factual findings cause this Court to find that carbon monoxide did not leak from the Piper Arrow and that there was no pathway through which carbon monoxide could travel from the Piper Arrow's exhaust system to its cabin.²²

F. Smith's Exposure to Carbon Monoxide

36. Plaintiff contends that Smith's carboxyhemoglobin ("COHb"), the level of carbon monoxide in his blood, was elevated at the time of the accident. After the accident, the NTSB requested that postmortem blood specimens from Smith, as well as his spleen, be tested for COHb. Those specimens were sent to FAA's Civil Aeromedical Institute ("CAMI"). Because of problems therein, CAMI, which is the lab normally used by the FAA to test such specimens, sent them to the Armed Forces Institute of Pathology ("AFIP") to test Smith's blood for carbon monoxide. The test of Smith's postmortem blood by Dr. Barry Levine ("Levine") at AFIP

²¹The engine was air cooled.

²²The Plaintiff contends, inter alia, that carbon monoxide traveled from the engine to the cabin through holes in heating hoses. However, those holes were caused as a result of wires being forced through the hoses during the crash.

revealed that Smith's blood had a 7% concentration of COHb.²³ Levine properly treated the level of COHb in Smith's blood as a negative case, one in which the level of COHb in the blood was not high enough to raise concerns that carbon monoxide was a contributing factor to the accident, since, in accordance with AFIP protocols, only when the level reached 10% would the results of the test be treated as a positive case, one where the level of COHb in the blood was high enough to raise those concerns. As a result of being treated as a negative case, the sample of Smith's blood was kept for only six months after having been tested, and then discarded.

37. Since Smith's blood specimen was a negative case, there was no reason to test his spleen. His spleen was also discarded.

38. The report from Smith's autopsy, although not expressly mentioning carbon monoxide, indicated that the autopsy revealed no evidence that Smith was suffering from a physical incapacitation or other life threatening condition before being killed as a result of the accident.

39. As the Court has found above, Smith was exposed to carbon monoxide while he was inside Chinn Aviation in the Portage County Airport, as a result of the use of a space heater by the proprietor of that establishment.

²³The results obtained by Levine were actually 6.6% and 6.5%, but were rounded up to the next highest whole number as is the custom with the AFIP. If the test had been performed by the CAMI, no results would have been reported, since that institution did not report COHb saturation levels below 10%.

40. Smith did not show any effects of exposure to carbon monoxide, after he landed at the Portage County Airport, despite having flown in the Piper Arrow from WPAFB to Columbus and then to Ravenna. There is no credible evidence to support a finding that he displayed such effects,²⁴ and he was able to concentrate on important safety matters, such as checking the oil in that aircraft and adding a quart of same.

41. Levine used an IL 482 Co-Oximeter to measure the COHb level in the specimen of Smith's blood. That screening instrument is designed to differentiate normal saturation of COHb (i.e., less than 10%) from abnormal saturations (i.e., more than 10%). When that instrument indicates that the specimen of blood has a COHb saturation above 10%, the AFIP protocol requires that the specimen be retested with a more accurate gas chromatograph.

42. The protocol of the AFIP is to add 50 mg of sodium dithionite per 500 microL of blood. In contrast, the manufacturer of the IL 482 Co-Oximeter recommends the addition of 20 mg of that chemical per 10 cc of blood.²⁵

43. Separate and apart from this litigation, Levine and others (collectively "Levine") conducted a study, using the same two IL 482 Co-Oximeters that had

²⁴Rugh's testimony to the contrary was discounted for reasons set forth below. See Infra at 104-106.

²⁵Sodium dithionite is added to the blood to lower the methemoglobin in the blood, thus preventing error messages on the machine with methemoglobin levels above 10%.

been used to test Smith's blood and the more accurate method of gas chromatography.²⁶ Levine found that in 47 out of 48 instances, where the IL 482 Co-Oximeters showed a reading of COHb below 10%, that the more accurate gas chromatograph had a lower reading of carboxyhemoglobin. That study was the basis of Levine's testimony that the saturation level of COHb in Smith's postmortem blood was well below 7%. The Court credits that testimony and finds that the saturation level of carbon monoxide in Smith's blood was below 7%.

44. Dr. Vernon Benignus ("Benignus"), one of the Government's expert witnesses, testified that the COHb level in a pilot's blood would have to exceed 18% in order for him to become impaired. The Court credits that testimony, which is based on Levine's study and established scientific principles.

45. When carbon monoxide is inhaled, it displaces the oxygen which carries blood to the body's organs including the brain. The normal mechanism of the body is to increase the flow of blood to the brain, in order to compensate for the displaced oxygen.²⁷ It is only when the COHb level reaches 30% that the increased blood flow to the brain is unable to compensate for the level of carbon monoxide in the blood reaching the brain.

²⁶During his study, Levine followed the protocols of the AFIP, which had been followed when Smith's postmortem blood was tested. The study was published as "Methodologic Considerations in the Interpretation of Postmortem Carboxyhemoglobin Concentration," and was written by Levine, Jeffrey D'Nicuola, Gary Kunsman, Michael Smith and Charles Stahl. The study is Exhibit M.

²⁷The increased blood flow results in the amount of oxygen getting to the brain remaining constant.

46. The level of COHb in Smith's blood, which was below the level of 7%, does not demonstrate that he was in any manner affected by carbon monoxide at the time of the crash. When the COHb is at that level, the degradation of performance is too small to demonstrate in the laboratory.²⁸

F. Breach of Duty of Care

47. The employees and agents of the Government did not fail to use reasonable care when they conducted the 100-hour/annual inspection of the Piper Arrow. There is simply no credible evidence that any such agent or employee did anything to permit carbon monoxide to leak from the engine or exhaust system of that aircraft. Indeed, Smith did not crash the plane, because he had been overcome by carbon monoxide; rather, as is found below, the cause of the crash was Smith's spatial disorientation.

G. Cause of the Crash

48. The Piper Arrow being flown by Smith crashed because he became spatially disoriented in the clouds above the Portage County Airport, shortly after taking off, and lost control of that aircraft, rather than as a result of his exposure to carbon monoxide. The spatial disorientation was caused by unfavorable weather; the darkness at the time of the crash; switching from VFR to IFR, as he flew into the

²⁸Smokers can have COHb levels of 5–15%, depending upon the number of cigarettes or cigars they may smoke daily.

clouds; the movements of his head caused by sitting in the right front seat rather than the left front seat, where the instruments would have been in front of him; the distraction caused by the partially open, upper latch of the right cabin door; the noise of the wind and the aircraft's being buffeted by it; and his attempt to return to the Portage County Airport.

II. Opinion

As is indicated above, the Plaintiff has set forth a wrongful death claim under the FTCA, alleging that Smith's death was caused by the negligence of the employees of the United States, by exposing him to levels of carbon monoxide that caused him to lose control of the Piper Arrow. Before discussing the evidence and applying the law to determine whether the Plaintiff has prevailed, this Court must rule on the admissibility of exhibits to which the parties objected at trial, as well as the parties' objections to deposition excerpts. The Court will then address Plaintiff's requests that it draw a negative inference against the Government because it is allegedly responsible for the spoliation of evidence and that the Court disregard testimony from some of the Government's expert witnesses, because their testimony does not comport with the requirements established by the Supreme Court in Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993). As a means of analysis, the Court will address those four issues in the above order.

A. Exhibits

At the close of the trial of this litigation, counsel for the parties exchanged exhibit lists, indicating which exhibits they would offer into evidence. The Court

established a procedure whereby the parties would brief their objections to the other's exhibits. The parties have complied with that procedure, and the Court now rules upon their objections, beginning with the Government's objections to the Plaintiff's exhibits. However, before engaging in that analysis, the Court will address the Joint Exhibits.

1. Joint Exhibits

The parties are in agreement that nine of the ten Joint Exhibits, numbers I through V, and VII through X may be admitted. The Court therefore admits those Exhibits without objection. The Plaintiff has objected to Joint Exhibit VI, arguing that it is not an authentic part of the wreckage and was not produced in a timely manner. In the absence of a response by the Government to the Plaintiff's objection, the Court sustains same and has excluded Joint Exhibit VI from the evidence considered in resolving this matter.

2. Plaintiff's Exhibits

In its post-trial submission on the exhibits offered by the Plaintiff, the United States has not objected to the following exhibits offered by the Plaintiff, to wit: 5-28, 30-65, 67-70, 72-74, 76-80, 87, 89-91, 100, 101, 103-105, 114, 115, 118-121, 123-125, 127, 128, 133, 135, 137, 141, 143-145, 148-213, 216, 217, 220-227, 229-231, 238-244, 246, 248-250, 260 and 264-266. See Doc. #181 at 2. Accordingly, the Court has admitted (and has considered) those exhibits without objection.

The Government has objected to a number of the exhibits offered by the Plaintiff.²⁹

The Government objects to three of the five portions of Plaintiff's Exhibit 1, a video recording, i.e., parts (B), (C) and (D).³⁰ The Court will address the Government's objections to those three parts in the above order.

Part (B) shows a Robert Elves ("Elves") latching the top cabin door latch, while piloting a Piper Arrow aircraft from the right hand seat. The Government objects to the introduction of that part of the videotape, noting that Elves' demonstration on part (B) does not simulate the conditions of the flight faced by Smith, arguing that the dissimilarities render the Elves depiction irrelevant. In response, the Plaintiff points out that Elves' demonstration was not offered to recreate the accident and that the dissimilarities were brought out on cross examination. See Doc. #182 at 3.

During the cross examination of Elves, the great dissimilarities between the conditions faced by Smith and Elves during his demonstration were pointed out, to wit: Elves' flight was not conducted at night; there was an emergency pilot in the left hand seat; the flight was conducted at a higher altitude and under level conditions; and Elves was not on actual or simulated instrument conditions. Given that the Court must resolve this matter by applying Ohio law, it must follow the decisions by the Ohio Supreme Court. In Miller v. Bike Athletic Co., 80 Ohio St.3d

²⁹Among others, the Government has objected to Plaintiff's Exhibit 142. Since the Plaintiff has withdrawn that exhibit (see Doc. #182 at 25), the Court will make no ruling on the Government's objection thereto.

³⁰Since the Government has not objected to portions (A) and (E) of Exhibit 1, the Court has admitted them without objection.

607, 615-16, 687 N.E.2d 735, 742-43 (1998), that court held that a test involving football helmets was admissible, despite the lack of similarity between the test and the accident giving rise to the litigation, a head on collision by a high school football player who was seriously injured as a result, and that the dissimilarity goes to the weight of the evidence. Accordingly, the Court overrules the Defendant's objection to part (B). That said, although the Court has admitted part (B) of Exhibit 1, it has given it no weight, because of the dissimilarities between the conditions under which the tape of Elves was made and those confronting Smith shortly before the accident.

The Government objects to part (C) of Exhibit 1, a videotape of Elves taking off, while sitting in the right seat, because Elves was simulating a "zero-zero" takeoff; the takeoff was under simulated rather than actual instrument conditions and did not occur at night; and the safety pilot was in the left seat. In accordance with Miller, this Court agrees with Plaintiff that part (C) of Exhibit 1 is admissible. Accordingly, the Court overrules the Defendant's objection. However, because of the dissimilarities between the conditions under which Elves and Smith took off, this Court, as the fact finder, has declined to give any weight to that part of Exhibit 1.

Part (D) of Exhibit 1 is a demonstration of the vacuum/relative pressure path of air in motion in the Piper Arrow aircraft while in flight. The Government argues that this portion of the tape is not relevant and, therefore, not admissible. In response, the Plaintiff contends that the demonstration is relevant to show that the cabin operates at lower air pressure than the areas around it, such as the engine compartment. This Court agrees with the Plaintiff that part (D) of Exhibit 1 is

marginally relevant. Accordingly, the Court overrules the Government's objection thereto.

The Government objects to the admissibility of Exhibits 2 and 3, photographs that appear to have been taken from the rear seat of the aircraft, contending that they do not show what an individual such as Smith would have seen while seated in the right front seat. As a result, the Defendant's argument continues, Exhibits 2 and 3 are not relevant. In response, the Plaintiff argues that the photographs are admissible, because they tend to establish the proximity of all flight instruments in both the left and right side of the instrument panel, the ease at which the markings on the flight instruments can be read, the general layout of the flight controls in the cabin, and "to establish the range of view from the approximate eye level of a pilot occupying the right hand seat, not the eye level of the person occupying the rear seat." Doc. #182 at 5. Plaintiff's propositions do not cause this Court to conclude that Exhibits 2 and 3 are relevant and, thus, admissible. The photographs do not depict what Smith would have seen, while sitting in the right front seat of the Piper Arrow on a dark night. The Plaintiff's fourth argument, concerning the eye level at which the photographs were taken, is well-taken, since photographs do show they were taken at that level. However, that does not cause this Court to conclude that they are admissible, since Defendant's objection focuses on the perspective of one sitting in the front right seat, rather than the level of the eye of the person taking the photograph.

Accordingly, the Court sustains the Government's objections to Exhibits 2 and 3, and has excluded those Exhibits from consideration in resolving this matter.³¹

The Government objects to Plaintiff's Exhibit 4, which is a photograph of an individual sitting in the right front seat of a Piper Arrow, manipulating the right front door latch. The Government argues that this Exhibit is not relevant, given that the photograph appears to be taken while the plane was on the ground and does not show the conditions that faced Smith on the night of the accident, given that Exhibit 4 was not taken during a flight at night, while the person in the right hand seat flew the plane under instrument conditions.

In response, the Plaintiff asserts that Exhibit 4 is relevant, because it tends to establish the reach required to manipulate the top door latch from the right hand control seat and the head angle of the pilot occupying that seat upon attempting to close that latch. Plaintiff stresses that Exhibit 4 is not intended to be a recreation of the accident.

For the reasons stated by Plaintiff, this Court agrees that Exhibit 4 is relevant. Accordingly, the Court overrules the Defendant's objection to the introduction of Exhibit 4 into evidence and has considered that Exhibit when ruling on the merits of this litigation.

The Government objects to Plaintiff's Exhibit 29, because it is missing three pages and, therefore, is incomplete. The Government suggests that the Court

³¹ Parenthetically, for the reasons set forth above, this Court, while sitting as fact finder, would have given no evidentiary weight to the photographs, if it had concluded that they were admissible.

admit its Exhibit 4Y,³² which is a complete version of Plaintiff's Exhibit 29.³³ Both exhibits are copies of a check list of service performed on the Piper Arrow. The Plaintiff disagrees with the Government's suggestion. Although not challenging the Government's assertion that Exhibit 4Y is a complete version of Exhibit 29, the Plaintiff argues that she has not represented that Exhibit 29 is a complete document.³⁴ While the Court does not consider that to be an adequate reason to admit both exhibits, it overrules the Government's objection to Plaintiff's Exhibit 29, since there is writing on the top of that exhibit (albeit nearly indecipherable) which is missing from Government's Exhibit 4Y, due to the manner in which the Government's exhibit was copied. Accordingly, the Court will admit Plaintiff's Exhibit 29.

The Government objects to Plaintiff's Exhibit 66, a document, dated October 26, 1993, which indicates that a 1.4 hour flight of the Piper Arrow was conducted in order "to verify an oil consumption problem." The Government objects to the admission of this document, arguing that it is not relevant since Plaintiff has not claimed that an oil consumption problem caused or was linked to the accident. See

³²That Exhibit is actually marked "Defendant's Exhibit YYYY;" however, for sake of clarity, the Court will employ the method used during the trial and describe a Government Exhibit with its letter, preceded by a numeral equal to the number of letters, as long as the Exhibit has multiple letters. Thus, the Court will refer to Defendant's Exhibit YYYY as Defendant's Exhibit 4Y. The Court will, however, refer to Government's Exhibit M as Exhibit M, rather than as Exhibit 1M.

³³This exhibit is a document with text printed on both the front and back of its pages. When it initially produced this document during discovery, the Government inadvertently copied only the front pages of this document, thus the version Plaintiff has sought to introduce is incomplete.

³⁴The Plaintiff has not objected to the introduction of Defendant's Exhibit 4Y.

Fed. R. Evid. 401 and 402.³⁵ In response, the Plaintiff argues, inter alia, that Exhibit 66 is relevant, because it tends to establish the source of the oil which was found inside the cabin heater duct after the accident. The question of the source of the oil found inside the duct bears upon the Plaintiff's claim. If that oil leaking from the engine ended up inside the cabin heater duct, then it is possible that carbon monoxide from the engine also migrated into that duct. Therefore, the Court overrules the Defendant's objection to Plaintiff's Exhibit 66, and admits that Exhibit into evidence.

The Government objects to Plaintiff's Exhibit 71, a service bulletin issued by the manufacturer of the Piper Arrow. The service bulletin advised the owners of certain models of aircraft manufactured by Piper Aircraft Corporation to inspect and to repair, if necessary, the exhaust systems on those models of aircraft. According to the Government, that exhibit is not relevant, since the bulletin applies to models of aircraft different from the Piper Arrow which Smith was flying on November 24, 1993. Although the Plaintiff agrees with the United States that the service bulletin does not apply to the Piper Arrow in question, she nevertheless argues that Exhibit 71 is relevant, pointing out that the service bulletin indicates that between 125 and 170 inch pounds of torque are to be used on the exhaust stack nuts. While the Plaintiff does not argue that the service bulletin establishes the amount of torque which should have been used when the exhaust stacks were reinstalled on the Piper Arrow, she does contend that the exhibit establishes that there must

³⁵Rule 401 defines relevant evidence as that which has "any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would have been without the evidence." Under Rule 402, relevant evidence is admissible, except as otherwise provided, while irrelevant evidence is inadmissible.

have been some torque setting for the reinstallation of the exhaust stack nuts. The Court agrees with Plaintiff that there is some marginal probative value in Exhibit 71. Accordingly, the Court overrules the Defendant's objection to that Exhibit, and admits same into evidence.

The Government has objected to Exhibit 83, a publication by the FAA, dated September, 1964, entitled Analysis of Engine Exhaust System Failures in General Aviation and written by G. R. Slushe. The Government argues that this publication is not relevant and that it contains hearsay within hearsay.

In response, the Plaintiff asserts that the relevance of Exhibit 83 has been established by a number of conclusions reached therein, which Plaintiff has set forth on page 9 of Doc. #182. As to the Government's argument that this Exhibit constitutes hearsay within hearsay, the Plaintiff argues that the document is a learned treatise under Rule 803(18) of the Federal Rules of Evidence.³⁶

This Court agrees with the Plaintiff that Exhibit 83 is relevant; however, it is unable to agree that the document does not constitute hearsay within hearsay.

Rule 803(18) provides:

(18) Learned treatises. To the extent called to the attention of an expert witness upon cross-examination or relied upon by the expert witness in direct examination, statements contained in published treatises, periodicals, or pamphlets on a subject of history, medicine, or other science or art, established as a reliable authority by the testimony or admission of the witness or by other expert testimony or by judicial notice. If admitted, the statements may be read into evidence but may not be received as exhibits.

³⁶The Plaintiff also argues that the Exhibit has been properly authenticated. Given that the Defendant has not challenged the authenticity of Exhibit 83, the Court has no occasion to address Plaintiff's argument in that regard.

(Emphasis added). Thus, the Sixth Circuit has held that Rule 803(18) is “an exception that allows parties to read learned treatises into evidence although those treatises may not be received as exhibits.” Grossheim v. Freightliner Corp., 974 F.2d 745, 754 (6th 1992). Accord, Finchum v. Ford Motor Co., 57 F.3d 526, 532 (7th Cir. 1995). In accordance with the explicit language of Rule 803(18), as well as Sixth Circuit precedent, this Court concludes that Plaintiff’s Exhibit 83, assuming it has been qualified as a learned treatise, is inadmissible, as an exhibit. Accordingly, the Court sustains the Defendant’s objection to Exhibit 83, which will not be admitted into evidence.

The Government has objected to Exhibit 84, a research report dated March 9, 1944, which addressed carbon monoxide inside the cockpits of certain types of aircraft used by the United States Navy and the concentrations of carbon monoxide in the blood of the pilots who flew those training planes. The Government argues that this report is not relevant, because of its age and the fact that the training planes in that study are dissimilar to the airplane involved herein. In response, the Plaintiff argues that this document is relevant to establish the levels of carbon monoxide in open cockpits of single engine aircraft.³⁷ The flaw in that argument is that the Plaintiff has not explained why the concentrations of carbon monoxide in the cockpits of different types of airplanes make it more probable that the concentration of carbon monoxide in the cabin of the Piper Arrow, at issue in this

³⁷The Plaintiff also argues that this exhibit does not constitute hearsay. However, given that the United States has not objected to it on the basis of hearsay, it is not necessary for the Court to address the Plaintiff’s arguments in that regard.

litigation, was elevated. Accordingly, the Court sustains the Defendant's objection to Exhibit 84, and excludes that document from evidence.

The Government objects to Plaintiff's Exhibit 86. The first page of that document is a communication from the Air Transport Association of America ("ATA"), dated December 27, 1949, indicating that the attached document is a copy of CAA release entitled "Toxic Gasses and Fumes which may be present in Airplanes."³⁸ The ATA also noted that "before issuance of this material, the CAA has requested comments from the ATA" and that the deadline for such comments was January 16, 1950. There is no indication as to whether the comments resulted in an alteration to the document attached thereto. The Government argues, inter alia, that Exhibit 86 must be excluded as hearsay. In response, Plaintiff contends that it is admissible as a learned treatise, in accordance with Rule 803(18). However, as is discussed above, although that Rule allows learned treatises to be read, it does not permit their introduction into evidence, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Government's objection to Exhibit 86, and excludes same from evidence.

The Government has objected to Plaintiff's Exhibit 92, a publication issued by the Aviation Medicine Research Division of the U. S. Army Aeromedical Research Laboratory, dated April, 1978, and entitled "The Interaction of Carbon Monoxide and Altitude on Aviator Performance: Pathophysiology of Exposure to Carbon Monoxide." The Government contends, inter alia, that Exhibit 92 is

³⁸According to the Plaintiff, CAA is an acronym for Civil Aeronautics Administration, the predecessor of the FAA.

inadmissible hearsay. Plaintiff counters by arguing that the Exhibit is admissible as a learned treatise under Rule 803(18). Once again, although that Rule permits a learned treatise to be read, it does not allow its introduction into evidence, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Government's objection to Exhibit 92, which has not been admitted into evidence.

The Government has objected to Plaintiff's Exhibit 93, the sixth edition of a publication by the American Conference of Governmental Industrial Hygienists, Inc., entitled "Documentation of the Threshold Limit Values and Biological Exposure Indices." The Government argues, inter alia, that Exhibit 93 is inadmissible hearsay. Plaintiff counters by asserting that Exhibit 93 is admissible as a learned treatise under Rule 803(18). Once again, although that Rule permits a learned treatise to be read, it does not allow its introduction into evidence, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Government's objection to Exhibit 93, which has not been admitted into evidence.

The Government has objected to Plaintiff's Exhibit 94, a letter dated August 31, 1982, from the Chairman of the Clean Air Scientific Advisory Committee ("CASAC") to the Administrator of the U. S. Environmental Protection Agency ("EPA"), concerning setting National Ambient Air Quality Standards ("NAAQS") for carbon monoxide. The Government contends, inter alia, that Exhibit 94 is inadmissible hearsay. Plaintiff counters by arguing that this Exhibit is admissible as a learned treatise under Rule 803(18). Once again, although that Rule permits a learned treatise to be read, it does not allow its introduction into evidence, even assuming it has been qualified as a learned treatise. Accordingly, the Court

sustains the Government's objection to Exhibit 94, which has not been admitted into evidence.

The Government has objected to Plaintiff's Exhibit 95, a letter dated May 7, 1984, from the Chairman of CASAC to the EPA Administrator, concerning findings and recommendations. The Government contends, inter alia, that Exhibit 95 is inadmissible hearsay. Plaintiff counters by arguing that Exhibit 95 is admissible as a learned treatise under Rule 803(18). As is set forth above, although that Rule permits a learned treatise to be read, it does not allow its introduction into evidence, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Government's objection to Exhibit 95, which has not been admitted into evidence.

The Government has objected to Plaintiff's Exhibit 96, a copy of regulations issued by the Occupational Safety and Health Administration ("OSHA") appearing in the Federal Register. The Government argues that this Exhibit is not relevant. In response, the Plaintiff asserts that Exhibit 96 is relevant, because it addresses the absolute limit of exposure to carbon monoxide levels in any work place. Plaintiff contends that this regulation applies to Smith, given that he was an employee. Although it has found that Smith was an independent contractor, the Court concludes that this Exhibit has marginal relevance. Accordingly, the Court overrules the Defendant's objection to Exhibit 96, and has admitted that Exhibit into evidence.

The United States has objected to Plaintiff's Exhibit 102, a study of the effect of the exposure to carbon monoxide on psychomotor functions. The Government argues that this exhibit constitutes inadmissible hearsay. The Plaintiff

argues that this exhibit is admissible, pursuant to the learned treatise exception to the hearsay rule, which is contained in Fed. R. Evid. 803(18). As has been discussed above, that Rule allows learned treatises to be read, but does not allow for their introduction into evidence. In accordance with the explicit language of Rule 803(18), as well as Sixth Circuit precedent, this Court concludes that Plaintiff's Exhibit 102 is not admissible, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that Exhibit, which will not be admitted into evidence.

The Government objects to Plaintiff's Exhibit 106, a publication approved by the American Chemical Society, entitled "Principals of Good Laboratory Practice for the Chemists Who Provide Laboratory Services for Their Clients." The Government objects to the admission of this Exhibit, arguing, inter alia, that it is hearsay. The Plaintiff has not responded to that argument. In the absence of a focused argument from the Plaintiff as to why this out of court statement, offered to prove the truth of the matters asserted therein, is either not hearsay or admissible as an exception to the hearsay rule, this Court is compelled to sustain the Defendant's objection thereto, and Exhibit 106 has not been admitted into evidence.

The Government objects to Plaintiff's Exhibit 108, a study on the measurement of carboxyhemoglobin and total hemoglobin by five spectrophotometers. The Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 108 is not admissible as an exhibit, even assuming it has been qualified as a

learned treatise. Accordingly, the Court sustains the Defendant's objection to that exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's Exhibit 109, a study that compared the analysis of carboxyhemoglobin by gas chromatography to spectrophotometry. The Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 109 is not admissible as an exhibit, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's Exhibit 110, a study which compared the measurement of carboxyhemoglobin by gas chromatography and with the IL 282 and 482 Co-Oximeters. The Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 110 is not admissible as an exhibit, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's Exhibit 111, an article that discussed the use of the IL 282 Co-Oximeter to measure, inter alia, the concentration of carboxyhemoglobin in whole blood. The Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 111 is not admissible as an exhibit, even assuming it has

been qualified as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's 112, a 1971 article from the Journal of Forensic Sciences, discussing various methods of determining the carbon monoxide content in postmortem, clotted blood. The Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 112 is not admissible as an exhibit, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's 113, an article which addresses the disposition of toxic chemicals, including carbon monoxide, in the human body. The Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 113 is not admissible as an exhibit, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that exhibit, which will not be received in evidence.

The Government objects to Plaintiff's Exhibit 116, an article on the measurement of carboxyhemoglobin and carbon monoxide in the blood. The Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 116 is not admissible as an exhibit, even assuming it has been qualified as a learned treatise. Accordingly,

the Court sustains the Defendant's objection to that exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's Exhibit 136, a report from David Penny, Ph.D. ("Penny"), one of Plaintiff's expert witnesses. The Defendant argues that this report is inadmissible hearsay.³⁹ This Court agrees with the Defendant that reports by expert witnesses are not admissible as exhibits. In Engbreetsen v. Fairchild Aircraft Corp., 21 F.3d 721, 728-29 (6th Cir. 1994), the Sixth Circuit held that a report prepared by an expert witness is not admissible as an exhibit. Accordingly, the Court sustains the Defendant's objection to Plaintiff's Exhibit 136. The Exhibit will not be received into evidence.

The Government objects to Plaintiff's Exhibit 138, Penny's supplemental report. For the reasons set forth above, the Court sustains the Defendant's objection to that Exhibit. The Exhibit will not be received into evidence.

The Government objects to Exhibits 139 and 140, notes prepared by R. G. Snell when he reviewed the maintenance records for the Piper Arrow, in preparation for filing an administrative claim. The Government argues that those notes are inadmissible hearsay. The Plaintiff counters by arguing that these exhibits are admissible in accordance with the business records exception to the hearsay rule, codified as Rule 803(6). That Rule provides:

(6) Records of regularly conducted activity. A memorandum, report, record, or data compilation, in any form, of acts, events, conditions, opinions, or diagnoses, made at or near the time by, or from information transmitted by,

³⁹The Plaintiff argues that Exhibit 136 is not hearsay, since it is a public record generated by the United States Department of Health, Education and Welfare. Although Plaintiff's Exhibit 137 is such a public record, her Exhibit 136 is most decidedly a report by an expert witness retained by her.

a person with knowledge, if kept in the course of a regularly conducted business activity, and if it was the regular practice of that business activity to make the memorandum, report, record, or data compilation, all as shown by the testimony of the custodian or other qualified witness, unless the source of information or the method or circumstances of preparation indicate lack of trustworthiness. The term "business" as used in this paragraph includes business, institution, association, profession, occupation, and calling of every kind, whether or not conducted for profit.

Courts have held that a document is not "kept in the course of a regularly conducted business activity," if it has been prepared in anticipation of litigation. See Certain Underwriters at Lloyd's, London v. Sinkovich, 232 F.3d 200, 205 (4th Cir. 2000); Scheerer v. Hardee's Food Systems, Inc., 92 F.3d 702, 706-07 (8th Cir. 1996); United States v. Blackburn, 992 F.2d 666, 670 (7th Cir.), cert. denied, 510 U.S. 949 (1993). See also, Potamkin Cadillac Corp. v. B.R.I. Coverage Corp., 38 F.3d 627, 632 (2nd Cir. 1994) (noting that document which is exempt from discovery under the work product privilege, cannot constitute a business record under Rule 803(6)). Herein, Snell prepared Exhibits 139 and 140, while conducting an investigation in preparation for submitting an administrative claim. Therefore, those notes were prepared in anticipation of litigation, rather than in the ordinary course of business.⁴⁰ Accordingly, the Court sustains the Defendant's objections to Plaintiff's Exhibits 139 and 140. As a consequence, those exhibits will not be received in evidence.

⁴⁰The Plaintiff also cites Rule 803(7) as a basis for holding that Exhibits 139 and 140 are admissible. This Court cannot agree. Under that Rule, evidence that a matter is not included in records, which qualify as business records under Rule 803(6), may be considered to prove the nonexistence or nonoccurrence of the matter. Since Exhibits 139 and 140 do not qualify as business records pursuant to Rule 803(6), they are not admissible pursuant to Rule 803(7). See Brodersen v. Sioux Valley Memorial Hospital, 902 F. Supp. 931, 953-54 (N.D.Iowa 1995).

The Government objects to Plaintiff's Exhibit 146, a portion of 14 C.F.R. Part 25. According to the Government, that regulation does not apply to the Piper Arrow. Regardless of the validity of that argument, this Court will decline to admit that exhibit into evidence. It is axiomatic that a court must determine the law which is applicable in a particular suit. In other words, the applicable law is not a matter about which the parties present evidence. Thus, the Sixth Circuit has held that "it is impermissible for a trial judge to delegate his duty to determine the law of a case to an expert. See United States v. Zipkin, 729 F.2d 384, 387 (6th Cir. 1984); Torres v. County of Oakland, 758 F.2d 147, 150-51 (6th Cir. 1985)." Molecular Technology Corp. v. Valentine, 925 F.2d 910, 919 (6th Cir. 1991). See also, Payne v. A.O. Smith Corp., 627 F. Supp. 226, 228 (S.D.Ohio 1985). Accordingly, the Court sustains Defendant's objection and will decline to receive Plaintiff's Exhibit 146 into evidence.

The Government objects to Exhibit 147, a Standard entitled "Controlling Exposure to Hazardous Materials," issued by the Air Force Occupational Safety, Fire Prevention and Health ("AFOSH"). The Government argues that Exhibit 147 is inadmissible, because it lacks relevance, given that the document relates to Air Force employees, while Smith was an independent contractor rather than such an employee. Moreover, the Government points out that exposure to carbon monoxide in the cockpit of a general aviation aircraft such as the Piper Arrow is governed by the FAA instead of the AFOSH. In addition, the Government asserts that the lack of relevance of this document is further demonstrated by the fact that it was dated December 1, 1997, and, therefore, was not in existence at the time of the accident. In response, the Plaintiff argues that Smith was clearly an

employee of the Air Force, given that the Aero Club maintained control over the manner in which Smith performed his duties as a flight instructor, even though he was not on the payroll of the Air Force or the Aero Club.

Above, this Court has found that the Aero Club is a non-appropriated fund instrumentality of the Defendant. Nevertheless, the Court cannot find that Smith was an employee of the Aero Club, rather than an independent contractor, despite the fact that it put controls on what Smith could do when using one of its planes. In addition, the Plaintiff has not responded to the Government's assertion concerning the publication date of this document. Therefore, this Court sustains the Government's objection to Exhibit 147, which has not been admitted into evidence.

The Government objects to Exhibits 228 and 233, which are, respectively, a table of torque requirements developed by Lycoming, the manufacturer of the Piper Arrow's engine, and notes taken by Joseph Lolly, one of the Plaintiff's expert witnesses, as he reviewed Exhibit 228. The Government argues that Exhibits 228 and 233 are not relevant. This Court cannot agree. As the Plaintiff argues, those Exhibits tend to show that it is necessary to use a torque wrench when tightening the studs that held the exhaust stack in place. Accordingly, the Court overrules the Defendant's objections to Exhibits 228 and 233, which have been admitted into evidence.⁴¹

⁴¹The seeming inconsistency in the Court's rulings on these Exhibits vis a vis its ruling on Exhibit 136, see supra, is due to the basis of the Government's objections, hearsay with respect to Exhibit 136, relevance with regard to Exhibits 228 and 233. The Court, throughout, has chosen to rule only on the express reasons given by the objecting party.

The Government objects to Exhibits 235, 236, 237 and 245, arguing that they are hearsay. Those Exhibits are, respectively, a spread sheet prepared by Dr. David G. Penney ("Penney"), one of the Plaintiff's expert witnesses, analyzing a study on toxicology; a carbon monoxide uptake chart prepared and used by Penney; a compilation of studies used by Penney to formulate his opinions; and a compilation of documents Penney relied upon to formulate his opinions. In response, Plaintiff points out that Exhibits 235, 237 and 245 were used by one of the Government's expert witnesses, Dr. Vernon Benignus ("Benignus"). Nevertheless, this Court is unable to conclude that these out of court statements are admissible, even though testimony about them was introduced during trial. Plaintiff has not suggested what exception to the hearsay rule permits their introduction. Just as the report of an expert witness is not admissible, the papers prepared by the expert to formulate his report are not admissible. Accordingly, the Court sustains the Defendant's objections to Exhibits 235, 236, 237 and 245, which have not been admitted into evidence.

The Government objects to Plaintiff's Exhibit 251, a page from a textbook. The Defendant argues, inter alia, that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 251 is not admissible, even assuming it has been qualified as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that Exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's Exhibit 256, a report on carbon monoxide poisoning incurred from riding in the back of pickup trucks. The

Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 256 is not admissible, even assuming it qualifies as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that Exhibit, which has not been received in evidence.

The Government objects to Plaintiff's Exhibit 258, an article on the short-term effects of exposure to carbon monoxide on the exercise performance of individuals with coronary artery disease. The Government argues that this Exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 258 is not admissible, even assuming it qualifies as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that Exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's Exhibit 261, an article on positional nystagmus. The Government argues that this Exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For reasons set forth above, the Court concludes that Exhibit 261 is not admissible as an exhibit, even assuming it qualifies as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that exhibit, and it will not be received in evidence.

The Government objects to Plaintiff's Exhibit 262, an article on the determination of carbon monoxide in the blood by gas chromatography. The Government argues that this exhibit is inadmissible hearsay. In response, Plaintiff contends that it is admissible as a learned treatise under Rule 803(18). For

reasons set forth above, the Court concludes that Exhibit 262 is not admissible as an exhibit, even assuming it qualifies as a learned treatise. Accordingly, the Court sustains the Defendant's objection to that exhibit, and it will not be received in evidence.

3. Defendant's Exhibits

The Plaintiff has not objected to the following exhibits, which the Government has offered into evidence, to wit: B-K, M-P, S, T, 2Q, 2R, 2U-3L, 3N, 3T-5H, 5K-5M, 5O-5R, 5T-5V, 5X-6A, 7C-7E, 7G-7M and 7O. Accordingly, the Court admits those exhibits without objection.

The Plaintiff has objected to a number of exhibits offered by Defendant.⁴² The Court will address the Plaintiff's objections in the order in which they have been presented, discussing similar objections together.

⁴²The Plaintiff has objected to Defendant's Exhibits L, R, V, X, Z, 2J and 2K, which are reports by the Government's expert witnesses. The Government has indicated that it is offering those reports into evidence, only if this Court receives the reports of Plaintiff's expert witnesses into evidence. See Doc. #187 at 11-12. Given that this Court has declined to admit the reports of Plaintiff's expert witnesses, it deems Defendant's Exhibits L, R, V, X, Z, 2J and 2K to have been withdrawn and, as a consequence, need not address the Plaintiff's objections to same. The Plaintiff has also objected to Defendant's Exhibits 2A, 2B, 2E and 2H, portions of learned treatises relied upon by Edward Holmes, an expert witness who testified on behalf of the Government. The United States concedes that these exhibits are not admissible pursuant to Rule 803(18); therefore, the Government indicates that it is not offering those exhibits. See Doc. #187 at 12. Accordingly, the Court need not rule upon the Plaintiff's objections to those exhibits, which will not be admitted into evidence. In addition, the Plaintiff has objected to Defendant's Exhibit 7N. Since the Government did not offer that exhibit into evidence, it is not necessary to rule upon the Plaintiff's objection to same.

The Plaintiff has objected to Defendant's Exhibits A, U, W, Y, 2I and 2O,⁴³ all of which are curriculum vitae of the Government's expert witnesses. According to the Plaintiff, these documents have no probative value beyond the testimony of the witnesses, which renders them "cumulative and repetitive" of the testimony in the record. This Court cannot agree. These exhibits describe the qualifications of those witnesses in convenient form. Therefore, the Court does not consider those documents to be merely cumulative and repetitive. Accordingly, the Court overrules the Plaintiff's objections to Defendant's Exhibits A, U, W, Y, 2I and 2O, which are admitted into evidence.

The Plaintiff has objected to Defendant's Exhibits 2F and 2G, pages of notes prepared by Edward Holmes ("Holmes"), one of the Government's expert witnesses. The Plaintiff argues that these notes were prepared by Edward Marciniak and that they lack authenticity. Holmes' testimony, however, establishes that he prepared the notes and adequately authenticated them. Accordingly, the Court overrules the Plaintiff's objections to Exhibits 2F and 2G, which have been admitted into evidence.⁴⁴

The Plaintiff objects to Exhibits 2S and 2T, descriptive drawings of a stainless steel gasket. Plaintiff argues that these Exhibits are inadmissible, because the stainless steel gasket depicted therein was never produced by the Government. In addition, Plaintiff contends that, insofar as the drawings are graphic depictions of an opinion about what might have happened based on a presumed fact not in

⁴³The last two Exhibits are 2-"Eye" and 2-"Oh".

⁴⁴Again, the Court's rulings on the admissibility of Exhibits are directed to and limited to the precise ground for objection raised by the objecting party.

evidence, they are inadmissible. In response, the Government notes that Holmes testified about what these drawings depict. Holmes' testimony was not about what might have happened, the Government's argument continues; rather he expressed his opinion to a reasonable degree of engineering certainty. The evidence supports the Defendant's assertions. Accordingly, the Court overrules the Plaintiff's objections to Exhibits 2S and 2T, which have been admitted into evidence.

The Plaintiff objects to Exhibits 3O, 3P and 3Q, photographs of the instrument panel and flight controls of a Piper Arrow.⁴⁵ The Plaintiff argues that the three photographs are inadmissible, because, while showing the general layout of the flight instruments and controls, they do not truthfully and accurately depict the flight controls and instrument panel of the aircraft at issue. Plaintiff also contends that the photographs have been enlarged to about 145% of the actual size of the aircraft that was photographed, which exaggerates the distance between the control seats, which are not shown, and distorts the proportions of the relative location of the instruments in an actual aircraft cabin. In response, the Government argues that the evidence at trial established that the photographs were taken of an aircraft similar to that in which Smith crashed and that they accurately depict what they purport to show. This Court agrees with the Defendant. Accordingly, the Court overrules Plaintiff's objections to Exhibits 3O, 3P and 3Q, which have been admitted into evidence.

⁴⁵The photographs are enlarged and have been glued to poster boards. They measure approximately 30 x 20 inches.

The Plaintiff objects to Defendant's Exhibit 5I,⁴⁶ an invoice from the Muncie Aviation Co. That invoice is for the purchase of two heater inlet hoses by the Aero Club, with a shipping date of October 6, 1993. The Plaintiff argues that this Exhibit is irrelevant, given that there is no evidence that the heater inlet hoses were purchased for the Piper Arrow Smith was flying. The Government responds by noting that this document was identified by Brunner, an independent contractor retained by the Aero Club in connection with the 100-hour/annual inspection, and that he placed one of those parts in the aircraft in question. The evidence supports the Government's position. Accordingly, the Court overrules the Plaintiff's objection to Exhibit 5I, which has been admitted into evidence.

The Plaintiff objects to Defendant's Exhibit 5J, an Aero Club document. According to the Plaintiff, this Exhibit is nothing more than a billing, which does not, as claimed by the Defendant, indicate that parts were transferred to the subject aircraft. In response, the Government argues that trial testimony identified and authenticated this document and that it is relevant to prove that the heater inlet hose was put on the Piper Arrow during the 100-hour/annual inspection and, as a result, is relevant. The Defendant has not, however, identified the witness who offered testimony about this Exhibit. Moreover, an examination of the notes of the Courtroom Deputy reveal that Exhibit 5J was not identified during trial. Accordingly, the Court sustains the Plaintiff's objection to Exhibit 5J, which has not been admitted into evidence.

⁴⁶That is Exhibit 5-"Eye".

The Plaintiff objects to Defendant's Exhibit 5N, the Wright Patterson Air Force Base aircraft accident final message report 94-2. The Plaintiff argues that this Exhibit was neither authenticated nor used in any manner in the course of the trial. In response, the Government asserts that Exhibit 5N is not hearsay pursuant to Rule 803(8), and that it relates to two other reports authored by Lt. Col. Gillespie, who was responsible for conducting the investigation of the accident for the Air Force. Once again, checking the minutes of the Courtroom Deputy reveals that no testimony was introduced concerning this Exhibit. Accordingly, the Court sustains the Plaintiff's objection to Exhibit 5N, which has not been admitted into evidence.

Plaintiff objects to Defendant's Exhibit 6V, portions of Penney's report used by the defense to cross-examine him. Above, the Court has sustained the Government's objection to Plaintiff's request to admit the entirety of that report, allowing Penney's testimony to stand alone in support of his opinions. Nevertheless, the Court overrules the Plaintiff's objection to Exhibit 6V, a portion of the report on which Penny was cross-examined, which has been admitted into evidence.

Plaintiff objects to Defendant's Exhibits 6W, 6X and 6Y, blowups of tables from an article authored by Benignus, one of the Government's expert witnesses. The Plaintiff argues that the Court should rely on the examination of Benignus concerning the tables and that those blowup portions of his article overemphasize his testimony concerning them. In response, the Government argues that Penney relied generally on Benignus' article in formulating his opinions and conclusions. While it is quite proper to use such blowups during the presentation of testimony,

this Court does not permit the introduction of same into evidence. Accordingly, the Court sustains the Plaintiff's objections to Exhibits 6W, 6X and 6Y, which have not been admitted into evidence.

Plaintiff objects to Exhibits 6Z and 7A, blowups of the table and part of the conclusion of the Wright Patterson study. Based upon the above reasoning, the Court sustains the Plaintiff's objections to Exhibits 6Z and 7A, which have not been admitted into evidence.

Plaintiff objects to Exhibit 7B, the N.A.M.E. News of April, 1997,⁴⁷ arguing that it does not qualify under an exception to the hearsay rule and that it is nothing more than a condensed version of Exhibit M, which has been admitted into evidence without objection. In response, the Government argues that this Exhibit is admissible under Rules 803(6) and (8). The Government has not responded to the Plaintiff's assertion that Exhibit 7B is nothing more than a condensed version of Exhibit M.

The article, Exhibit 7B, addresses the issue of postmortem COHb methodology and begins by stating that "a study by Levine, et al., concluded," after which the N.A.M.E. article discusses the paper entitled "Methodologic Considerations in the Interpretation of Postmortem Carboxyhemoglobin Concentration," written by Barry Levine, Jeffrey D'Niculoa, Gary Kunsman, Michael Smith and Charles Stahl. That paper is Exhibit M. Assuming Exhibit 7B is an accurate condensation of Exhibit M, it serves no useful purpose, as the Court must consider the longer article in any event. Accordingly, the Court sustains the

⁴⁷N.A.M.E. is an acronym for the National Association of Medical Examiners.

Plaintiff's objection to Exhibit 7B, as duplicative, without considering whether it is admissible under Rules 803(6) and/or (8). As a consequence, that Exhibit has not been admitted into evidence.

Plaintiff objects to Exhibit 7F, data about which Benignus testified extensively. Plaintiff's objection to this evidence is tied to his motion that the Court exclude Benignus' testimony under Daubert and its progeny. For reasons set forth below, this Court has rejected the Plaintiff's Daubert challenge to Benignus' testimony. Accordingly, the Court overrules the Plaintiff's objection to Exhibit 7F, which has been admitted into evidence.

B. Deposition Excerpts

The Government has requested that the Court admit certain portions of the depositions of Gerald Novak ("Novak") and Penney, as well as the entirety of the depositions of Gary Kunsman ("Kunsman") and Thomas Duddy ("Duddy"). In response, the Plaintiff has objected to the introduction of any portion of Penney's deposition and the entirety of Kunsman's. In addition, Plaintiff suggests that the Court should admit the entirety of the deposition of Novak. In response, the Government has argued that Rule 32(a)(4) does not permit the introduction of the entirety of Novak's deposition and has interposed a number of objections to portions of that deposition designated by the Plaintiff.⁴⁸ As a means of analysis,

⁴⁸In support of her request that the Court admit the entirety of the deposition of Novak, the Plaintiff has cited Rule 32(a)(4) of the Federal Rules of Civil Procedure. That Rule provides:

(4) If only part of a deposition is offered in evidence by a party, an adverse party may require the offeror to introduce any other part which ought in fairness to be considered with the part introduced, and any party may

the Court will discuss the parties' positions concerning the four depositions in the above order.

1. Novak

The Government has interposed a number of specific objections to the Plaintiff's counter-designations from Novak's deposition (i.e., all portions of that deposition which the Government did not designate). See Doc. #189 at 5-11. The Court will address those objections in the order in which they were presented.⁴⁹ However, before engaging in that analysis, the Court will briefly discuss Novak's role as a witness in this litigation. He is a trained and licensed aircraft mechanic, authorized by the FAA to certify annual inspections of aircraft. Novak was in a somewhat unique position as a witness. He was at the Portage County Airport when the fatal crash occurred and witnessed the final seconds of the flight of the Piper Arrow. Shortly after the crash, the NTSB retained him to help in its investigation. After this litigation was filed, Aircraft Exhaust Systems, Inc. ("ESI"), and Terry Rutherford ("Rutherford"), who been named as Defendants, identified Novak as an expert witness. Indeed, before Novak was deposed, counsel for ESI

introduce any other parts.

The Government argues that Rule 32(a)(4) does not permit the Plaintiff to request that the Court admit the entirety of the deposition of Novak, based upon fairness. Regardless of the correctness of that argument, the final clause of Rule 32(a)(4) permits any party to move for the introduction of other parts of a deposition. In accordance with that clause, the Plaintiff has, in effect, counter-designated all portions of Novak's deposition which were not selected by the Government.

⁴⁹The Government has objected to some of the Plaintiff's counter-designations on the basis that the questioning is repetitive.

and Rutherford had provided Plaintiff's counsel with a copy of the report Novak had prepared. Thus, when Novak was deposed, he was potentially both a fact and an expert witness. Thereafter, the Court entered summary judgment in favor of those two Defendants. See Doc. #157. During a conference between the Court and counsel for the Plaintiff and the Government, conducted after the entry of summary judgment, the Government indicated that it was adopting Novak as its witness. Plaintiff's counsel did not object; however, he did mention that Novak's testimony was the subject of a motion in limine. Although the portions of his deposition which the Government has designated relate, in the main, to what he saw and heard on November 24, 1993, as well as his observations during the NTSB investigation, the Government has designated certain portions of Novak's testimony in which he expressed his opinions. With that understanding in mind, the Court turns to the Government's specific objections to the Plaintiff's counter-designations from Novak's deposition.

The Government objects to the colloquy between Plaintiff's counsel and Novak occurring on page 11, arguing that Plaintiff's counsel was attempting to elicit expert opinions from that witness. As the Government points out, the Plaintiff did not identify him as one of her expert witnesses. In response, the Plaintiff states that Novak was an expert witness for the Government and that, therefore, the Government has waived its right to object to her use of Novak as an expert witness. It is not necessary for the Court to resolve, in the context of this particular objection, the dispute between the parties over the Plaintiff's use of Novak as an expert witness. Among the portions of Novak's deposition designated by the Government is his testimony on page 10, to the effect that a person

performing a 50-hour inspection of an airplane need not follow the manufacturer's checklist. In the colloquy on page 11, to which the Defendant objects, Plaintiff's counsel merely attempted to cross-examine on his prior testimony, which has been designated by the Government. Pursuant to the rule of completeness embodied by Fed R. Civ. P. 32(a) and Fed. R. Evid. 106,⁵⁰ it is appropriate to admit page 11 of Novak's deposition. Accordingly, the Court overrules the Government's objection to that page.

The Government objects to Novak's testimony, occurring on pages 13 and 14, concerning the manner in which he performs a 50-hour inspection. According to the United States, that testimony is irrelevant. The Plaintiff argues that, since the Government has adopted Novak as its witness, it has waived the right to object to the introduction of this testimony. Although the Plaintiff has not explained why the manner in which Novak performs a 50-hour inspection is germane to the issues which must be resolved in this litigation, this Court deems it to be relevant, since it relates to Novak's testimony on page 10, which is discussed above. Accordingly, the Court overrules the Defendant's objections to Novak's testimony on pages 13 and 14.

The Defendant objects to Novak's testimony, beginning on page 15 and continuing through line 15 on page 23. During that portion of the deposition, Plaintiff's counsel questioned Novak generally about the manner in which he had prepared his report for ESI and Rutherford, in preparation for cross-examining him

⁵⁰See Trepel v. Roadway Express, 194 F.3d 708, 716 (6th Cir. 1999) (requiring party to introduce additional portions of deposition in order to place statement in context).

on his opinions. Given that the Government has designated some portions of Novak's deposition in which he set forth his opinions, the Court concludes that it is proper to consider preliminary questions about how he reached those opinions. Accordingly, the Court overrules the Government's objection to Novak's testimony on pages 15-23.

The Government objects to an exchange between Plaintiff's counsel and Novak, occurring on page 26 of his deposition, where he indicated that two unidentified individuals from Dayton did not appear to have done any actual physical work on the aircraft. This Court agrees with the Government that this interchange is not relevant and, therefore, sustains its objection to that portion of Novak's deposition testimony.

The Government objects to Novak's testimony on pages 27-30, arguing that said testimony constitutes inadmissible hearsay. On those pages, Plaintiff's counsel questioned Novak about a statement he had given to an officer from the Ohio State Highway Patrol, either the night of the crash or the next day. Simply stated, none of Novak's testimony in that regard constitutes hearsay. Novak was not asked about what he had told the officer and, thus, did not testify as to what he had said to the officer. Hearsay is defined as "a statement, other than one made by the declarant while testifying at the trial or hearing, offered in evidence to prove the truth of the matter asserted." See Fed. R. Evid. 801(c). On pages 27-30 of his deposition, Novak did not repeat any out of court statement made by him or anyone else; therefore, that testimony is not hearsay. For instance, Novak was asked whether he had given a statement to that officer, on what day he had made his statement to them and whether the officer recorded his statement.

In addition, Plaintiff's counsel asked Novak to identify the statement, which he did, and whether he had read his statement to the Highway Patrol before writing his report. Accordingly, the Court overrules the Government's objection to Novak's testimony appearing on pages 27-30.

The Government objects to Novak's testimony on pages 36 and 37, arguing that Plaintiff's counsel was attempting to elicit hearsay testimony from the deponent. With the exception of one statement discussed in the footnote, the Court fails to see how the testimony on those pages is hearsay. Plaintiff's counsel merely asked Novak about other individuals who were in his presence at the time of the accident and if he knew where they lived. Accordingly, the Court overrules the Government's objection to the testimony on pages 36 and 37 of Novak's deposition, with the exception of the matter discussed in the footnote.⁵¹

The Government objects to the question by Plaintiff's counsel on page 47, line 16, of Novak's deposition, at which point he was asked whether he was a trained meteorologist. Novak testified that he was not. The Government contends that Plaintiff's counsel was attempting to utilize Novak as an expert witness, without having identified him as such. Regardless of the intent of Plaintiff's counsel, he did not elicit expert testimony from Novak on page 47. That testimony was in the context of the efforts by Plaintiff's counsel to cross-examine Novak on his observations on November 24, 1993, including the weather and how dark it

⁵¹With respect to one of the individuals, Michael Shelby, Novak indicated that he was not certain, but that the last he had "heard" Shelby was living in Mt. Vernon. Novak Dep. at 37, lines 18-19. The Court will disregard Novak's testimony as to what he had heard concerning the location of Shelby's current residence.

was when the plane crashed. Accordingly, the Court overrules the Government's objection to the testimony on page 47 of Novak's deposition.⁵²

The Government objects to questions by Plaintiff's counsel, appearing on page 51 of Novak's deposition, at which point he asked Novak whether he had any conversations with Marilyn McCumbers and whether anyone had told him that the Piper Arrow had no lights on. Novak indicated that he did not know who McCumbers was and that no one had told him that the plane was being flown without lights. It is apparent that Plaintiff's counsel was attempting to elicit hearsay from Novak. Nevertheless, given that he failed in his endeavor, the Court overrules the Government's objection to Novak's testimony appearing on page 51 of his deposition.

The Government objects to Novak's testimony appearing on page 55, at which point Plaintiff's counsel was attempting to cross-examine him on the meteorological conditions at the Portage County Airport at the time of the accident, in particular whether there was low overcast. The Government argues that the Plaintiff failed to establish a sufficient foundation to question Novak about the purpose of weather reporting stations and whether two particular individuals at the airport attempted to land at the Portage County Airport a few minutes prior to the accident. This Court cannot agree. Novak is a licensed, instrument rated pilot. As such he has sufficient knowledge to answer questions concerning the role of

⁵²The Government has raised a similar objection to testimony on page 50 of Novak's deposition, arguing that Plaintiff's counsel attempted to elicit expert testimony concerning the report he had given to the Highway Patrol. Since Plaintiff's counsel was merely cross-examining Novak on that report, rather than attempting to have him testify as an expert, the Court overrules this objection.

weather reporting stations in aviation. In addition, he was at the airport at the time of the crash; therefore, he would have knowledge of whether the two individuals had attempted to land shortly before the accident. The objection is overruled.

The Government objects to Novak's testimony appearing on page 57, at which point Plaintiff's counsel asked whether he was aware that the weather conditions at the Akron-Canton Airport "did fold up" about an hour after the accident. The Government contends that this testimony is not relevant, since Akron-Canton is some distance from the Portage County Airport, where the crash occurred. Simply stated, this Court agrees with the Government that whether Novak was aware that the weather conditions at Akron-Canton "did fold up" about an hour after the crash is not relevant to the issues presented in this litigation. Accordingly, the Court sustains the Government's objection to the foregoing colloquy occurring on page 57 of Novak's deposition.

The Government objects to testimony appearing on page 59 of Novak's deposition, arguing that Plaintiff's counsel was attempting to force Novak to speculate as to what had happened to the oil in the plane's engine after the crash. This Court does not agree. Plaintiff's counsel was merely inquiring into Novak's knowledge as to what happened to the oil. Accordingly, the Court overrules the Government's objection to the testimony by Novak appearing on page 59 of his deposition.

The Government points out that Jay Eggspuehler, counsel for ESI and Rutherford, objected to the form of a question posed by Plaintiff's counsel. The question and the objection both appear on page 61. At that point in the deposition Plaintiff's counsel was questioning Novak about the condition of the plane's engine

after the crash. With the question to which an objection was interposed, Plaintiff's counsel asked Novak whether certain photographs were "helpful in helping you recall or tell us what the situation was with the engine after it separated from the airplane?" Eggspuehler objected, stating that he did not believe it was clear as to what was meant by "the situation." Immediately thereafter, Novak exclaimed "exactly." Plaintiff's counsel then asked him other questions about the photographs. This Court interprets Novak's exclamation as a commentary on Eggspuehler's objection, rather than an answer to the question posed by Plaintiff's counsel. Since Novak did not answer the allegedly objectionable question, the Government's objection to same is moot.

The Government objects to the interchange between Plaintiff's counsel and Novak, on page 62 of his deposition, about the latter's knowledge of the location of the heater ducts, after the accident. In the course of that examination, Plaintiff's counsel provided a photograph of the engine to Novak and asked whether it showed the heater ducts. Novak replied that the photograph did not show the ducts, since they would have been below the engine. The Government objects to the testimony concerning the photographs, arguing that it is irrelevant. The Court agrees. The existence of facts, necessary to the resolution of this litigation, will not be made more or less probable because of Novak's inability to see heater ducts on a particular photograph. Accordingly, the Court sustains the Government's objection to Novak's testimony on page 62 about the inability to see heating ducts on the photograph shown to him by Plaintiff's counsel.⁵³

⁵³It should be noted that Plaintiff does not challenge the non-relevance of that testimony; rather, she contends that the other testimony on page 62 is relevant.

The Government objects to Novak's testimony on pages 63 and 64, at which point Plaintiff's counsel questioned Novak about his opinion as to how oil residue could have gotten into the heating ducts of the airplane. The Government argues that this questioning is impermissible, since Plaintiff was attempting to utilize Novak as an expert witness without having designated him as same. Plaintiff responded that the Government has waived its right to object to these questions, since it has adopted Novak as a witness. For reasons which follow, the Court concludes that it is unnecessary to resolve the parties' dispute on the propriety of Plaintiff using opinion testimony from a witness she did not designate as an expert.⁵⁴ It should be noted that the Government has requested that portions of Novak's deposition testimony be introduced as part of its case-in-chief. The Plaintiff did not move for the admission of any portion of that deposition during either her case-in-chief or her rebuttal case. Therefore, the Plaintiff's counter-designations of that deposition must be considered to constitute her cross-examination of Novak. Pursuant to Rule 611(b) of the Federal Rules of Evidence, cross-examination is limited to the scope of direct examination. In accordance with Rule 611(b), this Court will sustain any of the Government's objections to Plaintiff's counter-designations, based upon the Plaintiff's failure to identify Novak as one of her expert witnesses, to the extent that the Plaintiff has

See Doc. #190 at 25-26. Given that the Government has not objected to the other testimony on page 62, this Court does not address its relevance.

⁵⁴If Plaintiff had designated Novak as an expert witness who would testify on her behalf, she would have been required to furnish a report to the Government. See Fed. R. Civ. P. 26(a)(2). In addition, the Government would have had the opportunity to depose him.

designated portions of Novak's deposition which are beyond the scope of those designated by the Government. In contrast, the Court will overrule any objection interposed by the Government, predicated upon the argument that Plaintiff failed to identify Novak as an expert witness, if the portion of the deposition in question is within the scope of the Government's designations.⁵⁵ Applying those standards to Novak's testimony appearing on pages 63 and 64, the Government has not designated any portion of Novak's deposition in which he discussed oil residue in the heating ducts. Accordingly, the Court sustains the Government's objection to the testimony appearing on those pages.

The Government has objected to Novak's testimony, beginning on page 65 at line 20 and continuing through page 68, line 17. On those pages, Plaintiff's counsel was asking questions of Novak concerning the proper procedures for communicating with a tower when obtaining instrument clearance during a take-off.⁵⁶ Given that those opinions are beyond the scope of the portions of the deposition designated by the Government, the Court sustains this objection.

The Government objects to the final question and answer appearing on page 68, at which point Plaintiff's counsel asked Novak how he came to be employed by NTSB in its investigation. The Government argues that this question is

⁵⁵As will be seen below, the Government has interposed numerous objections on the basis that the Plaintiff is attempting to elicit opinion testimony from Novak without having identified him as an expert witness.

⁵⁶The Government also argues that Novak was not competent to testify in this area. The Court does not agree. On pages 64 and 65 of his deposition, Novak explained that he was a licensed pilot with an instrument rating; therefore, he is competent to testify as to the manner in which a pilot would communicate with a control tower prior to departing an airport.

objectionable, because Plaintiff's counsel was asking Novak to speculate. The Court does not agree. Plaintiff's counsel was merely attempting to elicit Novak's personal knowledge concerning his being hired by the NTSB. Accordingly, the Court overrules this objection.

The Government objects to Novak's answer to the first question appearing on page 70, i.e., whether he knew who had cleaned up the wreckage at the crash site. Novak indicated that he did not know, but then speculated that it could have been the Civil Air Patrol or somebody, possibly. The Government argues that Novak's response should be disregarded because it is speculative. The Plaintiff suggests that the objection should be overruled, since Novak's response did not establish a fact. Presumably, the parties are focusing on the portion of Novak's answer after he had said that he did not know who had cleaned up the wreckage. The Court agrees with the Plaintiff that Novak's speculative response, after his initial statement concerning his lack of knowledge, does not, and indeed could not, establish any fact of consequence in this litigation. Accordingly, that response is devoid of all relevance, and the Court sustains the Government's objection to same.

The Government objects to the questioning of Novak occurring from line 11 of page 70 through line 11 of page 71. At that point of the deposition, Plaintiff's counsel questioned Novak about the meaning of a letter written by Colonel William Gillespie. The Government contends that Novak's speculation about the meaning of that letter is inadmissible. This Court agrees. Novak was not the recipient of that letter, nor is there any indication that Gillespie consulted with Novak before he wrote it. Simply stated, it is not proper testimony to ask one witness to speculate

about the meaning of a document written by another individual, when the former was not the recipient of or involved in the drafting of that document. Accordingly, the Court sustains the Government's objection to the testimony occurring from line 11 of page 70, through line 11 on page 71.⁵⁷

The Government objects to the testimony appearing from line 24 on page 71, through line 7 on page 73. At that point in the deposition, Plaintiff's counsel was questioning Novak about his experiences in closing the cabin door of a Piper Arrow or other type of aircraft, while the plane was in flight.⁵⁸ The only potentially pertinent statement by Novak is that the cabin door, on a different type of aircraft than that which Smith was flying on November 24, 1993, could be closed with difficulty while that plane was in flight. Admittedly, the question of whether Smith could have easily closed the partially open cabin door on the Piper Arrow, without landing that plane, is a key factual issue in this litigation. This Court, however, fails to see how testimony from Novak that, with difficulty, he was able to close the cabin door on another type of aircraft, without landing that plane, makes it more likely that Smith could have done the same on the Piper Arrow. Accordingly,

⁵⁷The Plaintiff argues that it is perfectly permissible for Novak to express his opinion about the meaning of the letter, since he is an expert witness who has been adopted by the Government. In the absence of any discernable connection between the letter (in which Gillespie stated that all parts of the aircraft were at the crash site) and the subject of Novak's expert opinions, this Court cannot agree that it is proper for Novak to express his opinion concerning the meaning of that letter.

⁵⁸With this objection, the Government also mentions lines 12-23 on page 71. The subject of that testimony was the statements in Novak's report concerning the attitude indicator. That testimony is unrelated to the Government's objection concerning how to close the cabin door of a Piper Arrow while in flight.

the Court sustains the Defendant's objection to the testimony appearing from line 24 on page 71, through line 7 on page 73.

The Government objects to the testimony appearing from line 8 on page 73, through line 18 on page 75. At that point of the deposition, Plaintiff's counsel was questioning Novak about the attitude indicator in the Piper Arrow. The net result of this questioning was Novak's indication that he was not aware of what the NTSB had done with that instrument. The Government argues that this testimony is irrelevant, since the Plaintiff's claims are not based upon the theory that the crash was caused by the attitude indicator. In response, the Plaintiff points out that the Government has argued that a faulty attitude indicator could have caused Smith to look at a different instrument when he attempted to land the plane to close the cabin door, thus diverting his attention and contributing to the crash. This Court agrees with the Plaintiff's characterization of the Government's defense. Consequently, evidence pertaining to the attitude indicator is relevant. Accordingly, the Court overrules the Government's objection to Novak's testimony appearing in his deposition from line 8 on page 73, through line 18 on page 75.

The Government objects to Novak's testimony appearing in his deposition from line 19 on page 75, through line 15 on page 77. At that point of the deposition, Plaintiff's counsel was questioning Novak about flying an aircraft without all instruments functioning and from the right seat. The Government argues that this is improper opinion testimony from an expert whom she did not disclose. Since this testimony is beyond the scope of the portions of Novak's deposition designated by the Government, the Court sustains this objection.

The Government objects to the interchange between Plaintiff's counsel and Novak, appearing on page 79, to the effect that a trained flight instructor such as Smith should have been able to fly the Piper Arrow without the attitude indicator functioning properly and that a pilot should turn off his strobe lights, upon entering clouds, in order to avoid spatial disorientation. The Government argues that this is improper opinion testimony from an expert whom she did not disclose. Since this testimony is beyond the scope of the portions of Novak's deposition designated by the Government, the Court sustains this objection.

The Government objects to the question and answer beginning on line 23 of page 79. Plaintiff's counsel asked Novak whether he knew what had happened to the fourth or missing exhaust stack. Novak answered that he did not. The Government argues that Novak was being asked to speculate. The Court disagrees. The question merely asked Novak about his knowledge, and he answered the question directly without speculating. Accordingly, the Court overrules this objection.

The Government objects to testimony appearing on page 80 of Novak's deposition, at which point he was asked questions about the log books or maintenance records of the Piper Arrow. The Government argues that this testimony is objectionable, since the Plaintiff was attempting to utilize Novak as an expert witness, without having identified him as same. Since this testimony is beyond the scope of the portions of Novak's deposition designated by the Government, the Court sustains this objection.

The Government objects to the testimony beginning on line 15 on page 82, and continuing to line 7 on page 84. At that point of the deposition, Plaintiff's

counsel was questioning Novak about the importance of using torque wrenches when one installs the exhaust system on an airplane. Since this testimony is beyond the scope of the portions of Novak's deposition designated by the Government, the Court sustains the Government's objection to the testimony beginning on line 15 on page 82, and continuing to line 7 on page 84.

The Government objects to Novak's testimony appearing on page 87, at which point Plaintiff's counsel utilized a photograph to examine Novak concerning gouges on a cylinder from the plane's engine. According to the Government, the Plaintiff violated the best evidence rule by examining Novak with the picture, rather than the cylinder itself. The Court rejects that argument, given that the best evidence rule, Fed. R. Evid. 1001, et seq., is applicable to writings, recordings and photographs, rather than physical objects such as a cylinder from an aircraft engine. Moreover, the Government examined Novak on the same photograph and has designated the portion of his deposition covering that examination. Accordingly, the Court overrules the Government's objection to Novak's testimony appearing on page 87.

The Government objects to the testimony appearing on pages 88 through 94 of Novak's deposition. At that point of the deposition, Plaintiff's counsel was questioning Novak about photographs of exhaust gasket retainers and exhaust stack flanges from the engine of the Piper Arrow, as well as the maintenance manual published by the manufacturer of that aircraft. Plaintiff's counsel asked Novak to interpret and to express his opinion as to what those photographs disclosed. Plaintiff's counsel also questioned Novak concerning his opinion for the proper maintenance procedures for the Piper Arrow. The Government argues that

the Plaintiff is impermissibly attempting to elicit expert testimony from Novak, without having identified him as an expert witness. Since this testimony is beyond the scope of the portions of Novak's deposition designated by the Government, the Court sustains the Government's objection to the testimony appearing on pages 88 through 94 of Novak's deposition.

The Government has objected to a question by Plaintiff's counsel appearing on lines 1 and 2 of page 95, as well as the colloquy between counsel appearing on lines 3-17, arguing that the witness was being asked to speculate as to why the manufacturer of the Piper Arrow would publish certain documents. Eggspuehler interposed an objection to that question; consequently, Novak did not answer the question. Since no evidence appears on lines 1-17 of page 95, the Court will disregard that portion of Novak's deposition without the need to rule on the Government's objection.

The Government objects to testimony beginning on page 96 and continuing through page 99. At that point of the deposition, Plaintiff's counsel was questioning Novak concerning his opinions about the need to inspect the exhaust system on an aircraft before operating it in cold weather. The Government argues that the Plaintiff is impermissibly attempting to elicit expert testimony from Novak, without having identified him as an expert witness. The Plaintiff responded by pointing out that the Government has adopted Novak as an expert witness and, thus, has waived any objection to her use of Novak as such a witness. Since the testimony beginning on page 96 and continuing through page 99 of Novak's

deposition is beyond the scope of the portions of that deposition designated by the United States, the Court sustains the Government's objection to same.

The Government objects to a question and answer appearing at the top of page 100, at which point Plaintiff's counsel asked Novak to interpret a term in a document, "initial filed teardown," which Novak had not seen prior to his deposition. The Government objects to that interchange, arguing that it is improper to ask a witness to interpret a document he has not previously seen. This Court agrees and sustains this objection.

The Government objects to the remainder of the testimony on page 100, and continuing through page 104. At that point of the deposition, Plaintiff's counsel was asking Novak questions about the grooves he had observed on parts of the engine and identified on photographs. The Government argues that the Plaintiff is impermissibly attempting to elicit expert testimony from Novak, without having identified him as an expert witness. The Plaintiff responded by pointing out that the Government has adopted Novak as an expert witness and, thus, has waived any objection to her use of Novak as such a witness. The questions and answers beginning on line 20, page 100, and continuing through line 3 on the following page concern Novak's personal observations and, thus, are not expert testimony. Therefore, the Court overrules the Government's objection to those questions and answers. With the remainder of the questioning appearing on pages 101 through 104, Plaintiff's counsel was attempting to elicit expert opinions beyond the scope of the portions of the deposition designated by the Government. Accordingly, the

Court sustains the Government's objection to the questions and answers beginning on line 4 of page 101 and continuing through line 17 on page 104.

The Government objects to the questions and answers appearing on page 105. The Defendant argues that the Plaintiff was attempting to elicit expert testimony from Novak on the subjects of aerodynamics and air pressure phenomenon, areas in which he is not qualified as an expert and was not disclosed by the Plaintiff as such. Since that testimony is beyond the scope of the Government's designations, the Court sustains this objection.

The Government objects to the questions and answers beginning on line 3 of page 108 and continuing through line 13 on page 114. At that point of the deposition, Plaintiff's counsel was attempting to elicit expert testimony from Novak, concerning the proper installation of certain components of the heating system on an aircraft. Given that such testimony is beyond the scope of the Government's designations, the Court sustains this objection.

The Government objects to the colloquy between Plaintiff's counsel and Novak, beginning on line 15 of page 114 and continuing through line 22 on that page. The Government argues that Plaintiff's counsel was asking the witness to speculate about the inventories of used parts maintained by other mechanics. The Plaintiff responds by arguing that she was merely attempting to elicit Novak's expert opinion, as an aircraft mechanic, on that subject. Given that this subject is beyond the scope of the Government's designations, the Court sustains this objection.

The Government objects to the questions and answers beginning on line 14 of page 116 and continuing through line 3 of page 117. At that point in the deposition, Plaintiff's counsel was questioning Novak about whether an exhaust stack which appears to be in perfect condition could subsequently develop a leak. The Government argues that the Plaintiff was attempting to elicit expert testimony from Novak. Given that this subject is beyond the scope of the Government's designations, the Court sustains this objection.

The Government objects to the questions and answers beginning on line 19 of page 118 and continuing through the end of page 119. At that point in the deposition, Plaintiff's counsel was questioning Novak about the need to provide instructions to a mechanic on how to install an exhaust stack. The Government argues that the Plaintiff was attempting to elicit expert testimony from Novak. Given that this subject is beyond the scope of the Government's designations, the Court sustains this objection.

The Government objects to the questions and answers beginning on page 120 and continuing through the end of page 122. At that point in the deposition, Plaintiff's counsel was questioning Novak about the need to use torque wrenches when installing an exhaust stack. The Government argues that the Plaintiff was attempting to elicit expert testimony from Novak. Given that this subject is beyond the scope of the Government's designations, the Court sustains this objection.

2. Duddy

The Plaintiff argues that Duddy's deposition cannot be considered by the Court, since there is no indication that he was unavailable, which is the predicate for its use. In response, the Government argues that Duddy was unavailable, given that he resides in Montgomery, Pennsylvania.⁵⁹ See Duddy Deposition at 3. It is axiomatic that a witness is unavailable and that, therefore, his deposition may be used during a trial, when he resides beyond the 100 mile limit on the subpoena power of the Court. See Fed. R. Civ. P. 32(a)(4).⁶⁰ Accordingly, the Court overrules the Plaintiff's objection to the use of Duddy's deposition during the trial of this litigation.

3. Penney

Pursuant to Fed. R. Civ. P. 32(a), a deposition may be used at trial, "as permitted by the Federal Rules of Evidence." See also, Angelo v. Armstrong World Industries, Inc., 11 F.3d 957, 962-63 (10th Cir. 1993). Penney is an expert witness who testified on behalf of the Plaintiff during the trial of this litigation. The Government argues that certain excerpts of Penney's deposition are admissible pursuant to Fed. R. Evid. 801(d)(2)(C) and (D), as admissions of a party opponent. In support of that proposition, the Government relies upon Collins v. Wayne Corporation, 621 F.2d 777 (5th Cir. 1980). Therein, the Fifth Circuit concluded

⁵⁹Montgomery is near Williamsport, Pennsylvania. Duddy also indicated during his deposition that he had no plans to be in the Dayton area when this litigation went to trial; rather, he planned to be in Florida at that time. Duddy Deposition at 4.

⁶⁰At the time this matter went to trial, Rule 32(a)(4) was codified as Rule 32(a)(3).

that the District Court had erred when it refused to permit the plaintiff to introduce the deposition testimony of an expert witness retained by the defendant, as an admission of a party opponent pursuant to Rule 801(d)(2)(C). This Court cannot agree with Collins; rather, the more persuasive resolution of the issue was reached by the Third Circuit, in Kirk v. Raymark Industries, Inc., 61 F.3d 147 (3rd Cir. 1995), cert. denied, 516 U.S. 1145 (1996). Therein, the Third Circuit concluded that the deposition testimony of an expert witness could not be introduced as an admission of that party pursuant to Rule 801(d)(2)(C) or (D), writing:

Kirk misconstrues the entire premise of calling expert witnesses. In theory, despite the fact that one party retained and paid for the services of an expert witness, expert witnesses are supposed to testify impartially in the sphere of their expertise. Thus, one can call an expert witness even if one disagrees with the testimony of the expert. Rule 801(d)(2)(C) requires that the declarant be an agent of the party-opponent against whom the admission is offered, and this precludes the admission of the prior testimony of an expert witness where, as normally will be the case, the expert has not agreed to be subject to the client's control in giving his or her testimony. See Sabel v. Mead Johnson & Co., 737 F. Supp. 135, 138 (D.Mass.1990). Since an expert witness is not subject to the control of the party opponent with respect to consultation and testimony he or she is hired to give, the expert witness cannot be deemed an agent. See Restatement (Second) of Agency § 1 cmt. a (1958) ("The relation of agency is created as the result of conduct by two parties manifesting that one of them is willing for the other to act for him subject to his control, and that the other consents so to act.").

Id. at 164. The Third Circuit also indicated that an expert witness does not become the agent of the party, merely because that party retained him to testify.

Id. In Koch v. Koch Industries, Inc., 37 F. Supp. 2d 1231 (D.Kan. 1998), affirmed in part and reversed in part on other grounds, 203 F.3d 1202 (10th Cir.), cert. denied, 531 U.S. 296 (2000), the District Court followed the approach adopted by

the Third Circuit and held that Rule 801(d)(2)(C) and (D) do not authorize a party to introduce the deposition of an expert witness retained by a party opponent. This Court finds those decisions to be persuasive and will follow same. Accordingly, the Court will not permit the Government to introduce excerpts from Penney's deposition. See also, Lear Automotive Dearborn, Inc. v. Johnson Controls, Inc., 789 F. Supp.2d 777, 783 (D.Mich. 2011).

4. Kunsman

Under Fed. R. Civ. P. 32(a)(3), a deposition of a witness, regardless of whether that witness is a party, may be used at trial by any party for any purpose, if the District Court finds that one of the five circumstances, set forth in the five sub-divisions of that Rule, is present. The party which seeks to have a deposition admitted pursuant to Rule 32(a)(3) bears the burden of establishing that the particular circumstance exists. Allgeier v. United States, 909 F.2d 869, 876 (6th Cir. 1990). Whether to admit a deposition pursuant to Rule 32(a)(3) is committed to the discretion of the District Court. Id. Herein, the Government argues that the circumstance set forth in Rule 32(a)(3)(B), under which the deposition of a witness may be introduced at trial if the witness is at a distance of greater than 100 miles from the place of the trial, permits the entirety of Kunsman's deposition to be admitted into evidence. The Plaintiff takes the position that the Government has failed to show that Kunsman was unavailable for trial. This Court cannot agree with Plaintiff. As an initial matter, Rule 32(a)(4) permits any party to use the deposition of a witness if that witness is more than 100 miles from the place of

the trial.⁶¹ There is no need to show that the witness is otherwise unavailable.

Daigle v. Maine Medical Center, Inc., 14 F.3d 684, 691-92 (1st Cir. 1994).

Moreover, the evidence is sufficient to cause this Court to find that Kunsman was more than 100 miles from Dayton, when the trial of this litigation occurred.

Accordingly, the Court will admit the entirety of Kunsman's deposition into evidence.

C. Negative Inference

In her Amended Motion for Sanctions for Spoliation of Evidence (Doc. #216), Plaintiff has requested that this Court draw a negative inference against the United States, because its employees or agents destroyed or otherwise tampered with evidence ("spoliation of evidence").⁶² According to the Plaintiff, six matters serve as the basis for drawing that negative inference, to wit: 1) that the stainless steel gasket which, according to Plaintiff, was supposed to be installed in the gasket retainer for cylinder number one and the exhaust stack supposed to be attached to cylinder number three are missing; 2) that the exhaust stack which had been installed on cylinder number three of the aircraft which Smith had been flying is also missing; 3) that the manner in which the engine of the Piper Arrow was torn down was improper, since the positions of the individual cylinders on the crankcase were neither noted nor recorded; 4) that the maintenance log book of that aircraft

⁶¹See Footnote 60, supra.

⁶²Plaintiff states that her post-trial motion requesting that the Court draw a negative inference has superseded her pretrial motion requesting the same relief. See Doc. #216 at 1 fn. 1.

was altered; 5) that the pilot log book of Kevin Shope had been altered; and 6) that the samples of blood and spleen taken from Smith were not retained and were, in fact, discarded prematurely. See Doc. #216 at 1-2. As a means of analysis, the Court will initially set forth the legal standards by which the Plaintiff's request must be assessed, following which it addresses, in the above order, the six matters Plaintiff contends serve as bases for imposing a negative inference on the Defendant, discussing the first two together.

It should be noted that, under the FTCA, the United States is not subject to liability under theories of strict liability. Laird v. Nelms, 406 U.S. 797 (1972);⁶³ Chancellor v. United States, 1 F.3d 438, 440-41 (6th Cir. 1993). Drawing an inference against the Government as a result of one of the matters relied upon by the Plaintiff, without finding that the particular problem was caused by its employees, might result in the imposition of liability against the United States, without a showing of fault. Therefore, the FTCA prevents this Court from drawing an inference against the United States, in the absence of evidence that an employee or agent of the United States acted negligently. Although the law of Ohio was previously applicable to the question of whether there has been

⁶³In Laird, the plaintiffs sought to recover under the FTCA for property damage caused by a sonic boom from an Air Force plane flying over their residence. After the District Court had entered summary judgment in favor of the Government, the Fourth Circuit reversed. Although the appellate court agreed with the District Court that the evidence did not raise a genuine issue of material fact with respect to the Government's negligence in planning or executing the flight, it concluded that the United States could be held strictly or absolutely liable for engaging in an ultrahazardous activity. Upon further appeal, the Supreme Court reversed the decision of the Fourth Circuit, concluding that strict liability could not be imposed upon the United States in an action under the FTCA.

spoliation of evidence in a case under the FTCA (Welsh v. United States, 844 F.2d 1239, 1245 (6th Cir. 1988)), the Sixth Circuit subsequently concluded that the federal law of spoliation applies in cases in federal court for relief under federal law. Adkins v. Wolever, 554 F.3d 650 (6th Cir. 2009) (en banc). Therein, the Sixth Circuit explained:

As our sister circuits have recognized, a proper spoliation sanction should serve both fairness and punitive functions. See Vodusek v. Bayliner Marine Corp., 71 F.3d 148, 156 (4th Cir. 1995) (observing that a proper sanction will serve the “purpose[s] of leveling the evidentiary playing field and ... sanctioning the improper conduct”). Because failures to produce relevant evidence fall “along a continuum of fault-ranging from innocence through the degrees of negligence to intentionality,” Welsh [v. United States], 844 F.2d [1239,] 1246 [(6th Cir. 1988)], the severity of a sanction may, depending on the circumstances of the case, correspond to the party's fault. Thus, a district court could impose many different kinds of sanctions for spoliated evidence, including dismissing a case, granting summary judgment, or instructing a jury that it may infer a fact based on lost or destroyed evidence. Vodusek, 71 F.3d at 156.

Wolever urges us to hold that he should not be subject to spoliation sanctions because he did not control the evidence at issue. And he might be right, if, as he suggests, the preservation of relevant evidence was entirely beyond his control. But the fact-intensive inquiry into a party's degree of fault is for a district court. See Reilly [v. Natwest Markets Group, Inc.], 181 F.3d [253,] 267 [(2^d Cir. 1999)] (explaining that the “remedial purpose” of sanctions is “best adjusted according to the facts and evidentiary posture of each case”). Thus, we leave to the district court the exercise of its broad discretion to decide if Wolever should be subject to any form of spoliation sanctions despite the fact that he was not the prison records custodian.

Id. at 652-53.⁶⁴ In Beaven v. United States Dept. of Justice, 622 F.3d 540 (6th Cir. 2010), the Sixth Circuit added flesh to Adkins, writing:

⁶⁴Thus, this Court need not discuss the decisions by Ohio courts, relied upon by the Plaintiff. See Transamerica Insurance Group v. Maytag, Inc., 99 Ohio App. 3d 203, 650 N.E.2d 169 (1996); Travelers Insurance Co. v. Dayton Power and Light Co., 76 Ohio Misc.2d 17, 663 N.E.2d 1383 (1994).

“[A] party seeking an adverse inference instruction based on the destruction of evidence must establish (1) that the party having control over the evidence had an obligation to preserve it at the time it was destroyed; (2) that the records were destroyed ‘with a culpable state of mind’; and (3) that the destroyed evidence was ‘relevant’ to the party’s claim or defense such that a reasonable trier of fact could find that it would support that claim or defense.”

Id. at 553 (citations omitted). Applying the foregoing to the Plaintiff’s assertions of spoliation herein, the Court, for reasons which follow, concludes that the Plaintiff has not demonstrated her right to have a negative inference drawn against the United States.

First, Plaintiff claims that a stainless steel gasket from cylinder number one,⁶⁵ and the exhaust stack of cylinder number three of the Piper Arrow were recovered after the crash, but are now missing and that the United States must have destroyed those parts. According to Plaintiff, that the missing parts were in the custody of the United States and disappeared without explanation is demonstrated by the following chain of events. Novak, who was retained by the FAA and the NTSB to assist in the investigation of the accident, testified during his deposition that he took the exhaust system apart and that no part was missing. The parts were then sent to Lycoming, which stated that the exhaust stacks were included with the wreckage shipped to it. Lycoming further indicated that the aircraft wreckage was released to Gillespie. As a result of the foregoing, Plaintiff argues that the disappearance of the parts is unexplained and requests that the

⁶⁵A portion of the gasket was introduced into evidence as Joint Exhibit 1.

Court draw a negative inference against the United States, based upon its destruction of that evidence.

As an initial matter, Lycoming did not mention the missing portion of the stainless steel gasket. As a consequence, this Court concludes that the Plaintiff has failed to establish that it was returned to Gillespie and that the Government in some manner is responsible for its disappearance. Accordingly, the Court will not impose a negative inference on the Defendant for the missing portion of the stainless steel gasket, and the Court turns its focus to the missing section of the exhaust stack.

While the Government agrees that the portion of the exhaust stack is missing from the wreckage from the Piper Arrow, it argues that regulations in effect at the time of the accident did not require Gillespie, who was the Chief of Flight Safety of the Aeronautical Systems Center and the flight safety officer appointed as an advisor to the Aero Club, to store indefinitely or account for each and every part of an Aero Club aircraft involved in an accident.⁶⁶ Indeed, since the Piper Arrow was a civil aircraft, the investigation of the accident, including the collection of the wreckage, was overseen by Napolitan on behalf of the NTSB. The day after the accident, Gillespie and Jeffrey Crabtree ("Crabtree"), then the assistant manager of the Aero Club, went to the Portage County Airport, with Gillespie being designated as a party representative to the NTSB investigation. On that day, the remains of the engine of the Piper Arrow were moved into a nearby

⁶⁶In accordance with those regulations, Gillespie was in charge of the investigation of the crash on behalf of the Air Force.

building, under Napolitan's supervision. Although the inspection did not reveal any abnormalities, Gillespie requested that the remains be sent to Lycoming, and Napolitan agreed. Crabtree transported the wreckage that had not been sent to Lycoming to a hanger at WPAFB. The engine, including its exhaust system was shipped from Lycoming to WPAFB in a box. Gillespie did not open the box. Subsequently, the wreckage from the Piper Arrow, including the unopened box, was placed in a crate for storage.

This Court cannot conclude that it is appropriate to impose a negative inference on the United States as a result of the missing portion of the exhaust stack. The unrefuted evidence before the Court is that, at no time did Gillespie or any other Air Force employee have any reason to believe that there were abnormalities with the exhaust system of the Piper Arrow, nor did they have a remote reason to believe that carbon monoxide was in any manner linked to the accident. In addition, the evidence establishes that the representatives of the Air Force and the Aero Club, involved in the collection of wreckage, exercised due care in collecting the wreckage which was strewn over a large, partially wooded area. There is simply no evidence that Gillespie was aware that a portion of the exhaust stack was missing, given that he did not open the box which was shipped to Wright Patterson Air Force Base from Lycoming and that the box was then placed in storage. The Plaintiff has failed to establish that the portion of the gasket and the exhaust stack are missing due to the culpability of Gillespie and/or of any other agent or employee of the Aero Club, as required by Beaven, supra.

Accordingly, the Court declines to draw a negative inference against the Government, as a result of the missing portion of the exhaust stack.⁶⁷

Second, Plaintiff argues that the Court should draw the requested negative inference, because the manner in which the engine of the Piper Arrow was torn down was improper, since the positions of the individual cylinders on the crankcase were neither noted nor recorded. Quite simply, the evidence before the Court, in the form of declarations from Holmes, Duddy and Novak cause it to conclude that the appropriate number of each cylinder was properly noted and recorded upon it.

The Plaintiff has objected to Holmes' declaration, which is appended to the Government's Proposed Findings of Fact and Conclusions of Law (Doc. #229), arguing that the declaration should be disregarded, since it was filed long after the conclusion of the trial of this litigation. This Court cannot agree with Plaintiff's objection. Although attached to the Government's Proposed Findings of Fact and Conclusions of Law, the declaration was filed in order to rebut this branch of Plaintiff's request for a negative inference, which was raised for the first time after the conclusion of the trial.⁶⁸ Since this Court rejects the Plaintiff's assertion that

⁶⁷Given the manner in which the Court has resolved this branch of the Plaintiff's request that it draw a negative inference, it is not necessary to address the Defendant's argument that such relief is forbidden by the discretionary function exception to the FTCA, because that exception applied to Gillespie's activities during the investigation at question herein.

⁶⁸Parenthetically, the Government has set forth proposed findings concerning all branches of Plaintiff's request that the Court draw a negative inference in its Proposed Findings of Fact and Conclusions of Law (Doc. #229), which the Court assumes is why Holmes' declaration is attached thereto. In its Findings of Fact,

the appropriate number for each cylinder was not stamped thereon, it is not necessary to consider the factors identified by the Sixth Circuit in Beaven, supra.

Accordingly, the Court overrules the Plaintiff's request that it draw a negative inference, because the positions of the individual cylinders were neither reported nor noted.

Third, Plaintiff contends that agents of the United States altered a maintenance log book (Plaintiff's Exhibit 24) for the Piper Arrow. Therein, the certification for the 100-hour/annual inspection of that aircraft, which was completed on October 13, 1993, was made on page 664.⁶⁹ However, a notation concerning the 50-hour inspection, which was completed on November 22, 1993, more than one month later, appears on page 663. According to the Plaintiff, the out-of-sequence placement of the certification for the 100-hour/annual inspection is evidence that the log book was altered after the accident. The Plaintiff's theory was buttressed by Snell's testimony to the effect that he did not see the certification for the annual inspection, when he reviewed the log book at Wright

this Court has not made any findings pertinent to the Plaintiff's request that it draw a negative inference. Such findings are included in this portion of its Decision. The Court also stresses that it has not utilized Holmes' declarations when making its Findings of Fact, given that the Court's factual findings relate solely to the merits of this litigation and not to the issue of whether it should draw a negative inference.

⁶⁹The number 664 appears to be a Bates number, rather than being the actual page number in the log book. For sake of clarity, the Court will utilize the Bates numbers to identify a particular page.

Patterson Air Force Base in preparation for submitting an administrative claim on behalf of the Plaintiff. The evidence has caused this Court to find that the certification was put in the log book on October 13, 1993, and that, therefore, the document was not altered in the manner asserted by the Plaintiff.

During the trial, Brunner, who placed the certification in the log book, testified that he accomplished that on October 13, 1993. This Court finds that testimony to be credible. Moreover, neither of the reasons presented by Plaintiff cause this Court to doubt the veracity of Brunner's testimony. With respect to the out-of-sequence placement of the certification, it should be noted that there was not sufficient room at the bottom of page 663 for Brunner to place the certification. Brunner testified that he placed the certification on the top of the following page, page 664, because there was not room for it at the bottom of the preceding page. However, there was sufficient room for Leach to place a notation concerning the 50-hour inspection on page 663. When he did so, he merely failed to notice that Brunner had put the certification for the 100-hour/annual inspection on page 664. The Court credits Snell's testimony that he did not see the certification in the log book, when he reviewed it at WPAFB. Nevertheless, that testimony does not cause the Court to find that the certification for the 100-hour/annual inspection was not on page 664, when Snell inspected the log book. The Air Force would not permit Snell to copy the log book, so that he could study same in the familiar surroundings of his office. Rather, he was required to conduct his examination in a small office at WPAFB. Snell testified that he was not looking for the certification when he examined the log book and that he was

under pressure when he engaged in that activity. Therefore, given the conditions, and, further, since Snell was not looking for a certification, it is probable that Snell simply failed to notice Brunner's certification on page 664. Since this Court rejects the Plaintiff's assertion that the certification was missing from Brunner's log book, it is not necessary to consider the factors identified by the Sixth Circuit in Beaven, supra.

Accordingly, the Court finds that the maintenance log book for the Piper Arrow was not altered after the accident and that, therefore, there is no basis for imposing sanctions on the Government as a result of such an alleged alteration.

Fourth, Plaintiff claims that an alteration of the pilot log book of Kevin Shope ("Shope") serves as the basis for drawing an adverse inference against the Government. This Court does not agree. There is an entry in Shope's log book, Ex. 265, indicating that he had flown the Piper Arrow on October 13, 1993, the day upon which the 100-hour/annual inspection of that plane had been completed. That entry appears to have been altered with "white out." According to the Plaintiff, Shope initially wrote October 15th in his log book, which Plaintiff argues indicates that Shope did not fly that aircraft until that date, rather than two days earlier. The Plaintiff contends that Shope altered the date to October 13th, in order to support the Government's theory that the plane was flown on that date. Although the entry was altered, this Court cannot agree with the Plaintiff that Shope initially flew the Piper Arrow on October 15th. Rather than altering the entry in his log book to support the Government's theory of the case, Shope merely

made an error, which he corrected with "white out." Shope testified at trial that he had flown that plane on Wednesday, October 13th. The Court credits that testimony. Shope had no motive to alter his log book in order to support the Government's theory of the case. He is not and was not an employee of the United States. In October, 1993, he was employed as a dispatcher by the Lima, Ohio, Police Department. At the time of trial, he was a Methodist minister, serving a congregation in Indiana. Although he had been a member of the Aero Club when he rented the Piper Arrow in October, 1993, he was no longer a member when he testified at trial. Since this Court rejects the Plaintiff's assertion that Shope altered his log book in order to support the Government's theory of defense, it is not necessary to consider the factors identified by the Sixth Circuit in Beaven, supra. Accordingly, the Court declines to draw a negative inference against the United States, because of the alteration of Shope's log book.

Fifth, the Plaintiff focuses on the samples of Smith's blood and spleen which had been sent to the AFIP shortly after the crash. Smith's blood was tested for the presence of carboxyhemoglobin on two IL 482 Co-Oximeters, with the result being that there was a 7% saturation level of COHb in Smith's postmortem blood. Smith's spleen was not tested, nor was his blood tested by gas chromatography. Those blood and spleen samples were discarded in May, 1994, approximately six months after they had been received by the AFIP. According to the Plaintiff, AFIP protocols required that samples which had tested positive be kept for a minimum of six years. This premature destruction of the samples, the Plaintiff argues, serves

as the basis for drawing an inference against the United States that Smith was impaired by carbon monoxide. This Court will decline to draw the requested inference.

The Court agrees with Plaintiff that AFIP protocols required that specimens testing positive be kept for a period of at least six years, while those testing negative were disposed of after six months. In addition, the Plaintiff is correct in her assertion that the samples of Smith's blood and spleen were discarded after six months. This Court, however, parts company with the Plaintiff with respect to her assertion that the sample of blood is negative only if carboxyhemoglobin is not present in the sample of blood. The most reasonable interpretation of evidence, including Levine's interpretation of the protocols, is that a specimen was considered to be negative, unless its carboxyhemoglobin level exceeded 10% saturation. Given that Smith's blood tested at 7% saturation, the blood was not considered to be positive; therefore, its destruction six months after being received did not violate the protocols of the AFIP. Moreover, even if the AFIP protocols could be interpreted as providing that a blood sample was negative, only if carboxyhemoglobin is not present, Levine's interpretation of the protocol is not unreasonable. Therefore, he did not act with the requisite intent, the requisite level of culpability, in discarding the samples of Smith's blood and spleen. Accordingly, the Court rejects the Plaintiff's request that it draw a negative inference, because the blood and spleen samples were not retained, as required by AFIP protocols.

The Plaintiff also contends that the requested negative inference should be drawn, because Smith's spleen was not tested and his blood was not subjected to

a confirmatory test using gas chromatography. Although this Court accepts Plaintiff's factual premise that neither such test occurred, it cannot agree that same serves as the basis for drawing a negative inference. For the reasons set forth above, the Court finds that Smith's blood did not test positive for carboxyhemoglobin. Moreover, the Court credits Levine's testimony that it is preferable to test blood for carboxyhemoglobin, rather than another organ such as the spleen. Therefore, the Court declines to draw a negative inference as a result of the failure to test Smith's spleen or to subject his blood to a confirmatory test.

Since this Court rejects the Plaintiff's assertion that Smith's blood tested positive, it is not necessary to consider the factors identified by the Sixth Circuit in Beaven, supra. Accordingly, based upon the foregoing, the Court declines to draw a negative inference against the United States, due to its alleged premature destruction or alteration of evidence.

D. Testimony by Defendant's Expert Witnesses

The Plaintiff has requested that this Court strike and disregard the testimony of Charles Berry, M.D. ("Berry"), Dr. Barry Levine ("Levine") and Dr. Vernon Benignus ("Benignus").⁷⁰ The Plaintiff's requests are based upon the decision of the Supreme Court in Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993). As a means of analysis, this Court will initially discuss the standards

⁷⁰The Plaintiff also seeks to exclude testimony from any other of the Defendant's expert witnesses whose opinions were based upon those offered by either Levine or Benignus. In the event that the Court concludes that the testimony from any of those individuals must be excluded, the Court will turn to the Plaintiff's alternative argument.

governing the admission of expert testimony established by Daubert and its progeny, following which it will apply those standards to the testimony of the three expert witnesses in question.⁷¹

In Daubert, the Supreme Court rejected the argument that the general acceptance standard is the sine qua non of the admissibility of scientific evidence under Rule 702 of the Federal Rules of Evidence.⁷² Rather, the Daubert Court “established a general gatekeeping [or screening] obligation for trial courts” to exclude from trial expert testimony that is unreliable and irrelevant. Conwood Co., L.P. v. U.S. Tobacco Co., 290 F.3d 768, 792 (6th Cir. 2002) (citations omitted). See also, Newell Rubbermaid, Inc. v. The Raymond Corp., — F.3d —, —, 2012 WL 1080745 at *3-*4 (6th Cir. April 3, 2012). This gatekeeping function applies “when considering all expert testimony, including testimony based on technical and other specialized knowledge.” Clay v. Ford Motor Co., 215 F.3d 663, 667 (6th Cir.

⁷¹Before the commencement of trial, this Court began a Daubert hearing, by hearing testimony from Levine. However, before the parties had concluded their evidentiary presentations concerning Plaintiff’s Daubert challenge to Levine’s testimony, the Court cancelled that hearing, concluding that it would be more efficient to rule on the Plaintiff’s Daubert challenges based upon the evidence presented at trial. As a consequence, the Court has relied exclusively on the parties’ post-trial filings, to rule upon the Plaintiff’s three challenges. In the event that the Court agrees with the Plaintiff that Berry’s, Levine’s and/or Benignus’ testimony violated Daubert, the Court will order his or their trial testimony to be stricken, and it will disregard such testimony.

⁷²The general acceptance standard was first adopted by the District of Columbia Court of Appeals in Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923). When this matter was tried, Rule 702 provided:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

2000) (emphasis in original). Accord Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 141 (1999). When deciding whether evidence is admissible under Daubert, the District Court must determine whether the evidence “both rests on a reliable foundation and is relevant to the task at hand.” Id. In assessing reliability and relevance, the District Court must examine whether the expert is proposing to testify to scientific or other specialized knowledge which will assist the trier of fact to understand or to determine a fact in issue. Jahn v. Equine Servs., PSC, 233 F.3d 382, 388 (6th Cir. 2000). This involves a preliminary inquiry as to whether the reasoning or methodology underlying the testimony is scientifically valid and whether that reasoning or methodology properly can be applied to the facts in issue. Id. Some of the factors that may be used in such an inquiry include:

- 1) whether the theory or technique can be tested, 2) whether it has been subjected to peer review and publication, 3) whether the potential rate of error is known, and 4) its general acceptance. Daubert, 509 U.S. at 593-94; Hardyman v. Norfolk & W. Ry. Co., 243 F.3d 255, 260 (6th Cir. 2001). “This inquiry is a flexible one, with an overarching goal of assessing the ‘scientific validity and thus the evidentiary relevance and reliability’ of the principles and methodology underlying the proposed expert testimony.” United States v. Langan, 263 F.3d 613, 621 (6th Cir. 2001) (citation omitted). “[A] trial judge must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable.” Kumho Tire Co., 526 U.S. at 152. See also Best v. Lowe’s Home Centers, Inc., 563 F.3d 171, 176 (6th Cir. 2009) (noting that the Sixth Circuit applies “the abuse-of-discretion standard in reviewing a district court's decision

regarding the admissibility of expert testimony” and that “[a] district court abuses its discretion if it bases its ruling on an erroneous view of the law or a clearly erroneous assessment of the evidence”) (citations omitted). The Supreme Court has noted that there can be a close correlation between an expert’s methodology and his conclusions. The Sixth Circuit has cautioned against certifying an expert when certain “red flags” are present, which include reliance on anecdotal evidence, improper extrapolation, failure to consider other possible causes, lack of testing, and subjectivity. Best v. Lowe’s Home Ctrs., Inc., 563 F.3d 171, 177 (6th Cir. 2009).

[C]onclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data. But nothing in either Daubert or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the ipse dixit of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered. See Turpin v. Merrell Dow Pharmaceuticals, Inc., 959 F.2d 1349, 1360 (C.A.6), cert. denied, 506 U.S. 826 (1992).

General Electric Co. v. Joiner, 522 U.S. 136, 146 (1997). The proponent of expert opinion evidence has the burden of demonstrating by the preponderance of the proof that the evidence complies with Rule 702 and Daubert. Daubert, 509 U.S. at 592 n. 10; Nelson v. Tennessee Gas Pipeline Co., 243 F.3d 244, 250 (6th Cir.), cert. denied, 534 U.S. 822 (2001). Of course, in addition to meeting the criteria of Daubert, testimony from a particular expert witness is admissible under Rule 702, only if that witness is qualified by knowledge, skill, experience, training, or education. See e.g., Morales v. American Honda Motor Co., Ltd., 151 F.3d 500, 514-16 (6th Cir. 1998).

1. Berry

The Plaintiff argues that this Court should strike and disregard Berry's testimony that the 7% saturation level of carboxyhemoglobin in Smith's blood did not cause or contribute to the crash of the Piper Arrow. See Doc. #212. The basis of the Plaintiff's request is as follows. In addition to stating that the 7% saturation level did not cause or contribute to the fatal crash, Berry testified that he would stake his life on the fact that thousands of pilots have flown with saturation levels of carboxyhemoglobin up to 15%, without their ability to fly an aircraft being impaired. Plaintiff also points to testimony presented by Benignus, another of Defendant's expert witnesses, to the effect that a pilot's exposure to carbon monoxide would have to exceed 51 parts per million, in order to reach a carboxyhemoglobin saturation level of 18 to 20% in the blood.⁷³ Plaintiff cites 14 C.F.R. § 23.831(a), which addresses the ventilation of aircraft and prohibits carbon monoxide concentrations in an aircraft which exceed one part per 20,000, a number which is equal to 50 parts per million. Plaintiff argues that Berry's testimony, in effect, indicates that no practical consequences would flow from a violation of that regulation.⁷⁴ According to Plaintiff such testimony is improper,

⁷³During Plaintiff's cross-examination of Berry, he deferred to Benignus' testimony in that regard.

⁷⁴The Court assumes that Plaintiff's reference to the absence of practical consequences means that she interprets Berry's testimony as indicating that exposure to a greater concentration of carbon monoxide in the cabin than that permitted by the regulation, 14 C.F.R. § 23.831(a), would not impair a pilot's ability to fly an aircraft.

since “[o]ne cannot repeal a specific safety regulation by claiming its objective is of no consequence.” Doc. #212 at 5.⁷⁵

Accepting for present purposes that Berry testified, in effect, that a violation of 14 C.F.R. § 23.831(a) would not impair a pilot’s ability to fly an aircraft, the Court cannot conclude that his testimony concerning his opinion that the 7% saturation level of carboxyhemoglobin in Smith’s blood did not cause or contribute to the crash is inadmissible under Daubert. Berry was eminently qualified to render his opinion concerning the physiological effects of levels of carbon monoxide on pilots. He is a board certified aerospace medicine physician. Berry has been actively engaged in the practice of that area of medicine for 46 years and has served as a senior aviation medical examiner for the FAA for over 40 years. Moreover, the Court rejects the Plaintiff’s implicit contention that Berry’s opinion concerning the lack of a causal connection between the saturation level of Smith’s blood and the crash was based solely upon his statement that he would stake his life on the fact that thousands of pilots have flown with saturation levels of carboxyhemoglobin up to 15%, without their ability to fly an aircraft being

⁷⁵It bears emphasis that the Plaintiff is requesting that this Court disregard Berry’s testimony that the 7% saturation of carboxyhemoglobin in Smith’s blood could not have caused or contributed to the fatal plane crash. The Plaintiff has failed to explain how Berry’s testimony, to the effect that exposure to a greater concentration of carbon monoxide than that set forth in the regulation would not produce practical consequences, means that his opinion, concerning the lack of a causal connection between the 7% saturation level of Smith’s blood and the fatal crash, is inadmissible under Daubert. The Court assumes that the Plaintiff implicitly contends that the only basis for that opinion is his testimony that saturation levels up to 15% would not impair a pilot’s ability to fly an aircraft, which Plaintiff has characterized as nothing more than a “bald assurance of validity.” Doc. #212 at 3.

impaired. On the contrary, he based that opinion on his review of the relevant literature and various studies. If the effect of Berry's overall testimony is to suggest that the exposure limitations for carbon monoxide, contained in 14 C.F.R. § 23.831(a), may have been set at a level without practical consequences, such a matter implicates the weight to be given to his testimony, rather than its admissibility. Accordingly, the Court declines to strike and to disregard any portion of Berry's testimony.⁷⁶

2. Levine

Levine analyzed the sample of Smith's blood at the AFIP and testified, inter alia, that a more reasonable estimate of COHb saturation in Smith's blood would be 2% to 3% and that an estimate of that saturation level would be below 7%. Plaintiff argues that, in accordance with Daubert and its progeny, this Court must disregard that testimony from Levine. Plaintiff also argues that the Court should disregard any attempt to validate Levine's opinions with a study conducted in 1996.⁷⁷ As a means of analysis, the Court need only discuss the Plaintiff's

⁷⁶The Plaintiff also argues that, merely because some pilots can safely fly aircraft with elevated carboxyhemoglobin levels, does not mean Smith did so. Although that argument might serve as the basis for discounting Berry's testimony, it does not convince this Court to strike or disregard his opinion. See Jahn v. Equine Services, PSC, 233 F.3d 382 (6th Cir. 2000) (noting that certainty is not a predicate to the admissibility of testimony by an expert witness).

⁷⁷Plaintiff has identified this study as having been conducted in August, 1977, and August, 1997. The Government points out that the study, which is Defendant's Exhibit M, appeared in a 1996 issue of "Toxicology." Consequently, the Court concludes that the study occurred in 1996.

challenges to Levine's study, given that the Plaintiff focuses solely on that study and the Defendant has not identified a reason why Levine's two opinions set forth above are admissible under Daubert, if the study violated the principles of that decision. In other words, if the study falls, Levine's opinions will be stricken, and, if the study is valid under Daubert, so are his opinions.

At the request of the NTSB, blood samples from Smith were sent to the FAA's Civil Aeromedical Institute ("CAMI") for analysis. CAMI, in turn, sent the samples to the AFIP. As is the norm for testing blood samples at the AFIP, Smith's blood was tested COHb on two different IL 482 Co-Oximeters. The results from the tests were 6.5% and 6.6%, which, in accordance with AFIP protocol, were rounded up to 7%.

In 1996, Levine and others published a peer reviewed article in a magazine, "Toxicology".⁷⁸ The purpose of that article was set forth therein in the following manner:

To properly interpret the toxicological findings, it is important for the toxicologist to be aware of the capabilities and limitations of the method used to [quantify] the COHb saturation levels. Therefore, a study was undertaken using a reference gas chromatographic method to assess the ability of the commonly used spectrophotometric method to accurately [quantify] low amounts of COHb in postmortem blood specimens.

⁷⁸As indicated, the article is entitled "Methodologic Considerations in the Interpretation of Postmortem Carboxyhemoglobin Concentration," and was written by Levine, Jeffrey D'Niculoa, Gary Kunsman, Michael Smith and Charles Stahl. For sake of convenience, the Court refers to the author of the study solely as Levine. The study is Defendant's Exhibit M, which was admitted into evidence, without objection.

Exhibit M at 138. In conducting the study, Levine used the same two IL 482 Co-Oximeters to conduct that study as had been used to measure the COHb concentration in the samples of Smith's blood, because those were the two such machines being used at the AFIP where Smith's blood was tested and Levine's study was conducted. Unlike the test of Smith's postmortem blood, Levine also used the more accurate gas chromatographic method to test the blood samples for COHb saturation.⁷⁹ In his article, Levine noted that, when the COHb level in the postmortem blood was below 10%, the IL 482 Co-Oximeter gave higher readings for carboxyhemoglobin than did the gas chromatograph in 47 out of 48 samples of such blood.⁸⁰

In arguing that the Levine study must be excluded from evidence, the Plaintiff quotes a passage from Levine's trial testimony, which took place during cross-examination, attempting to demonstrate that evidence is lacking as to whether Sgt. Dan Accola ("Accola"), the individual who conducted the testing, followed Levine's instructions to test each sample of blood twice, once on each of the two IL 482 Co-Oximeters, rather than twice on the same machine. However, Plaintiff omits from that quotation of Levine's trial testimony the following exchange:

Q. Will you agree, however, that it is possible that the same specimen was run through one or both of the instruments twice in the study, or just once?

⁷⁹The AFIP protocol required that the gas chromatographic method be used when the Co-Oximeter indicated that the saturation of COHb exceeded 10%. Since Smith's level was 7%, use of the more accurate method was not indicated.

⁸⁰It is unquestioned that gas chromatography is a more accurate method of measuring the saturation of COHb in postmortem blood.

A. Anything is possible. I don't consider it reasonable when I instruct Sgt. Dan Accola to follow our standard operating procedure manual that he would do anything other than that.

Q. Okay.

A. -- unless he told us.

XIII Transcript (Doc. #203) at 116:3-11. Accordingly, the Court rejects the Plaintiff's assertion that Accola failed to follow the proper protocol for the study.

Additionally, Plaintiff argues that the manner in which gas chromatography is conducted under the AFIP protocol, and which was utilized by Levine during his study, was improper. This Court cannot agree. Levine repeatedly testified that the method utilized was consistent with generally accepted scientific principles. The propriety of using the gas chromatography was further demonstrated by the use of commercially prepared quality control samples of postmortem blood with each batch of specimens analyzed with the instrument, in order to validate that it was operating properly. The gas chromatograph must give the right answer on the quality control sample in order for the result of a batch of samples to be accepted. Moreover, Penney and Elves, Plaintiff's expert witnesses who testified about carbon monoxide issues in this matter, did not criticize the methodology used by Levine with the gas chromatographic method.

As indicated, the Supreme Court held that the following factors may be considered when determining whether to permit an expert witness to testify, to wit: 1) whether the theory or technique can be tested, 2) whether it has been subjected to peer review and publication, 3) whether the potential rate of error is

known, and 4) its general acceptance. Daubert, 509 U.S. at 593-94. Herein, there is no question that Levine's theory can be tested, given that his methodology could be replicated by another scientist to test the validity of his conclusions. In addition, his theory was subjected to publication in a peer reviewed publication. While there is no evidence of the potential error rate of Levine's theory, the methodology he used has general acceptance. Accordingly, the Court concludes that Levine's article, which served as the underpinning for his testimony that the 7% COHb saturation level in blood reported as a result of the use of the IL 482 Co-Oximeter was high, is reliable, as that term is defined in Daubert and its progeny.

The Plaintiff also argues that the Levine's testimony violates Daubert, because, when testing samples of postmortem blood on the IL 482 Co-Oximeter during the study, he used more sodium dithionite to dilute the blood than is recommended by the manufacturer of that machine. In accordance with the protocol of the AFIP, 50 mg of that chemical per microL of blood was added to each sample of postmortem blood during Levine's study.⁸¹ The AFIP protocol was also followed when Smith's blood was tested. This Court is unable to agree with the Plaintiff that Levine's addition of more sodium dithionite than recommended by the manufacturer of the machine serves as the basis for concluding that his study is invalid under Daubert and that, therefore, his testimony must be stricken and disregarded. Levine testified that the AFIP protocol in that regard would have been validated before he began working at that facility. More importantly, Levine

⁸¹The manufacturer recommends the addition of 20 mg of sodium dithionite per 10 cc of blood.

testified that the purpose of adding sodium dithionite is to decrease the level of methemoglobin in the blood, because samples with the methemoglobin above 10% will cause errors in the IL 482 Co-Oximeter and an error message to appear on that instrument. He also testified that the AFIP protocol is scientifically suitable and is based upon sound scientific principles. In addition, Levine conducted a second study where he tested postmortem blood samples, adding the amount of sodium dithionite recommended by the manufacturer and that provided for by the AFIP protocol. He found that the amount of that chemical added to the blood does not significantly alter the COHb levels obtained using the IL 482 Co-Oximeter.

Moreover, it bears emphasis that, during the study which served as the basis for Levine's article (Exhibit M), blood samples were split in two and tested on both of the IL 482 Co-Oximeters and by the more accurate method of gas chromatography. The results of that study revealed that the less accurate instrument yielded COHb values higher than the more accurate method in 47 out of 48 instances. Finally, the Court notes that the Plaintiff failed to present any evidence, tending to establish that following the AFIP protocol and, thus, using more sodium dithionite than recommended by the manufacturer in any manner skews the COHb reading obtained on the IL 482 Co-Oximeter.

Based upon the foregoing, the Court rejects the Plaintiff's Daubert challenge to Levine's testimony and refuses to strike or disregard that testimony.

3. Benignus

Benignus, one of the Government's expert witnesses, testified, inter alia, that the COHb saturation level in Smith's blood was less than 7%, that an IL 482 Co-Oximeter has been known to have problems and that piloting skills would not be impaired by a COHb saturation level exceeding 5%. See Doc. #214 at 2. The Plaintiff argues that those three opinions presented by Benignus violate Daubert and, therefore, must be stricken and disregarded. For reasons which follow, this Court cannot agree.

The Plaintiff initially points out that Benignus' opinion that the reported COHb saturation level in Smith's blood of 7% overstated the actual level of COHb in his blood is based upon Levine's study and the data obtained during that study. Above, this Court has rejected the Plaintiff's Daubert challenge to Levine's testimony, which was based upon an attack on his study. Simply stated, to the extent that Plaintiff's challenge to Benignus' testimony is predicated upon her assertion that Levine's study or the data developed during that study violated the principles enunciated in Daubert, the Court rejects same for the reasons articulated above.

Plaintiff also argues that Benignus' opinions are flawed, because he was not certain whether Levine used one or two gas chromatographs, nor did he know the make and model of the machine used by Levine. In addition, Plaintiff contends that Benignus did not know whether the machine used by Levine had been calibrated. Quite simply, while these matters may serve as the basis for impeaching Benignus' testimony, they do not cause this Court to conclude that Benignus' testimony

violated Daubert. At most, these factors go to the weight, not the admissibility of that testimony.

Plaintiff's main challenge to Benignus' testimony is to his opinion that carboxyhemoglobin levels exceeding 18%, well above the saturation of COHb in Smith's blood, is necessary to cause any measurable impairment in a pilot. Plaintiff initially argues that Benignus' testimony does not meet the standards required by Daubert, because COHb saturation at the level that Benignus testified would not cause an impairment (up to 18%) exceeds the amount set forth in the regulations at the time of the accident. The regulation, 14 C.F.R. § 23.831(a), provided that "[c]arbon monoxide concentrations may not exceed one part in 20,000 parts of air."⁸² According to Plaintiff, Benignus' theory is based upon the unwarranted assumption that the FAA regulators do not know the effects of certain levels of carbon monoxide on aviators. Plaintiff also points out that the U.S. Army published the Denniston Report, which arrives at conclusions contrary to those reached by Benignus and notes that he acknowledged that no one in the aviation community has indicated that the Denniston Report should be ignored.⁸³ In addition, Plaintiff contends that Benignus' opinion that carboxyhemoglobin levels exceeding 18% are necessary to cause any measurable impairment in a pilot is not based upon any scientific methodology which is related to the skill and training

⁸²One part per 20,000 equals 50 parts per million, which is the number the parties and witnesses used throughout this litigation. Parenthetically, although the regulation has been amended, the limitation of 50 parts per million remains in effect.

⁸³The Denniston Report is Plaintiff's Exhibit 92.

necessary to pilot an airplane in instrument conditions. Finally, Plaintiff notes that Benignus excluded from consideration 26 scientific articles, because the data therein was not replicable, and argues that, as a result, his testimony violates Daubert, because his selection of research data has not been shown to be scientifically appropriate.

In response, the Government points out that Benignus' testimony encompassed two aspects in this litigation, to wit: 1) the behavioral aspect, a question of the amount of COHb and its possible behavioral effects; and 2) the actual concentration of carboxyhemoglobin aspect, what a more accurate instrument would have indicated was the saturation of COHb in the samples of Smith's postmortem blood.

The Court need not discuss the second aspect of Benignus' testimony identified by the Government, given that Benignus' testimony in that regard tracked that given by Levine and was based on the data developed by Levine. Therefore, for the reasons which this Court rejected the Plaintiff's Daubert challenge to Levine's testimony, it rejects her similar objection to the second aspect of Benignus' testimony.

Moreover, the Court notes that the Plaintiff's criticisms of Benignus' testimony in this regard are not supported by the evidence. For instance, Plaintiff contends that Benignus' opinion falls short of the standard of reliability adopted by the Supreme Court, given that he did not independently develop the data upon which his opinion is based. The flaw in the argument is that the record is devoid of any evidence that an expert violates some scientific principle by relying on data

developed by another, conducting independent research. It bears noting that the Plaintiff failed to introduce any evidence that calls into question Benignus' methodology. In addition, Plaintiff criticizes Benignus' correction equation, because it was developed solely for this litigation. Quite simply, Daubert does not preclude testimony that is based upon theories developed solely for a particular lawsuit, as long as the testimony is otherwise reliable, as defined therein. Since Benignus' testimony in this regard is reliable under Daubert, the Court rejects this criticism.

Turning to the first aspect of Benignus' testimony, the behavioral aspects of COHb concentrations, the Government initially points out that Benignus' did not testify about the FAA regulation, disclaiming the ability to speak for that government agency, given that he did not know the process through which the FAA developed the regulation.⁸⁴ The only testimony concerning the regulation came from Berry, who indicated that it would take hours of exposure to carbon monoxide of 50 parts per million to result in a saturation level of 7%, the readings from the two IL 482 Co-Oximeters used to measure the sample of Smith's blood. Berry described the regulation as "bureaucratic overkill." Berry also testified that the regulation was adopted to protect aging cardiac patients with angina, and not healthy pilots.⁸⁵ Based upon Berry's testimony which has not been controverted,

⁸⁴Benignus also pointed out that the length of time to which one was exposed to carbon monoxide was not set forth in the regulation. Common sense dictates the conclusion that longer exposures to 50 parts per million of that gas is more dangerous than shorter such exposures.

⁸⁵The regulation is applicable to all civil aviation, not just private aircraft such as the Piper Arrow being flown by Smith.

the Court rejects Plaintiff's challenge to Benignus' testimony based upon the FAA regulation.

In response to Plaintiff's challenge to Benignus' testimony concerning his exclusion of the results from certain studies, because the results of those studies could not be replicated, the Government argues that this criticism is flawed in two respects, to wit: 1) Benignus did not exclude the studies; and 2) Plaintiff presented no evidence to support the proposition that a critical examination of publications by fellow researchers is inappropriate. Since the Court agrees with the second of the Government's two identified flaws in this criticism by the Plaintiff, it has no occasion to examine the first. Simply stated, if one researcher were not permitted to critically review the research produced by his fellow scientist, our species would remain locked in the premise that the earth revolves around the sun.

Based upon the foregoing, the Court rejects the Plaintiff's Daubert challenge to Benignus' testimony and, as a result, will neither strike nor disregard that testimony.

E. Opinion: Application of Law to Fact

The Plaintiff has brought this wrongful death action under the FTCA. That statute provides that the United States shall be liable in tort claims "in the same manner and to the same extent as a private individual under like circumstances."⁸⁶

⁸⁶Although the FTCA contains exceptions to the broad imposition of liability on the United States (see 28 U.S.C. § 2680), none of those exceptions is applicable in this litigation. In addition, it is undisputed that the Government is liable for the actions of the Aero Club, a non-appropriated fund instrumentality. Indeed, Plaintiff initially named the Aero Club as a Defendant in this litigation; however, this Court

28 U.S.C. § 2674. Thus, the liability of the United States under the FTCA is to be determined in accordance with the law of the state where the event giving rise to the liability occurred. Premo v. United States, 599 F.3d 540, 545 (6th Cir. 2010); Young v. United States, 71 F.3d 1238, 1242 (6th Cir. 1995). See also, Vance v. United States, 90 F.3d 1145, 1148 (6th Cir. 1996); Huffman v. United States, 82 F.3d 703, 705 (6th Cir. 1996). Since the accident occurred in Ravenna, Ohio, and the maintenance and inspection of the Piper Arrow took place at WPAFB, also located in Ohio, the parties agree that the liability of the United States is to be determined in accordance with the law of Ohio.

As is indicated, the Plaintiff has asserted a claim under Ohio's wrongful death statute, Ohio Revised Code § 2125.01, et seq. That statute permits the fiduciary of an individual's estate to maintain a wrongful death action, if the individual's death was caused by the wrongful act, neglect or default of another and that individual would have been entitled to maintain an action, if his death had not resulted. Consequently, a wrongful death claim must be predicated upon a separate tort. Herein, the Plaintiff predicates her wrongful death claim on a negligence theory. In particular, she contends that the Defendant was negligent in its maintenance and inspection of the Piper Arrow, permitting carbon monoxide to travel into the cabin of that aircraft, which caused Smith to become impaired and the plane to crash. In Chambers v. St. Mary's School, 82 Ohio St.3d 563, 697 N.E.2d 198 (1998), the Ohio Supreme Court recently reiterated that "[i]n order to

granted summary judgment in favor of that entity, given that the United States is the only appropriate defendant in an action under the FTCA.

recover on a negligence claim, a plaintiff must prove (1) that the defendant owed the plaintiff a duty, (2) that the defendant breached that duty, and (3) that the breach of the duty proximately caused the plaintiff's injury. Wellman v. E. Ohio Gas Co. (1953), 160 Ohio St. 103, 108-109, 51 O.O. 27, 30, 113 N.E.2d 629, 632; Sedar v. Knowlton Constr. Co. (1990), 49 Ohio St.3d 193, 198, 551 N.E.2d 938, 943, overruled on other grounds, Brennaman v. R.M.I. Co. (1994), 70 Ohio St.3d 460, 639 N.E.2d 425." Id. at 565, 697 N.E.2d at 200-01. Accord, Jeffers v. Olexo, 43 Ohio St.3d 140, 539 N.E.2d 614 (1989); Meniffee v. Ohio Welding Products, Inc., 15 Ohio St.3d 75, 472 N.E.2d 707 (1984); Wheeler v. Ohio State University, 2011 WL 6147619 (Ohio App. 2011). Of course, when a duty is owed, it is one of reasonable care. Strother v. Hutchinson, 67 Ohio St.2d 282, 285, 423 N.E.2d 467, 469-470 (1981); Schnetz v. Ohio Dept. of Rehabilitation & Corrections, 195 Ohio App.3d 207, 214, 959 N.E.2d 554, 560 (2011); Kubiak v. Wal-Mart Stores, Inc., 132 Ohio App.3d 436, 440, 725 N.E.2d 334, 337 (1999). "'Reasonable care' is defined as the degree of caution and foresight that an ordinarily prudent person would employ in similar circumstances." Franks v. Ohio Dept. of Rehabilitation & Corrections, 195 Ohio App.3d 114, 958 N.E.2d 1253, 1257 (2011).

In Littleton v. Good Samaritan Hospital & Health Center, 39 Ohio St.3d 86, 92, 529 N.E.2d 449, 454 (1988), the Ohio Supreme Court indicated that the same elements must be proved in order to prevail on a wrongful death claim predicated upon a negligence theory.

Under the law of Ohio, whether the defendant owed a duty to the plaintiff presents a legal question that depends upon the foreseeability of the plaintiff's injury. Menifee, 15 Ohio St.3d at 77, 472 N.E.2d at 710. An injury is foreseeable if a reasonably prudent person would have anticipated that an injury was likely to result from the performance or nonperformance of an act. Id. Herein, the parties are in agreement that the Defendant owed a duty of reasonable care to Smith. Therefore, the Court must decide whether the Plaintiff met her burden of proving, by the preponderance of the evidence,⁸⁷ that the Defendant breached its duty of reasonable care and that said breach of duty was the proximate cause of Smith's death.

The Plaintiff contends that employees of the Aero club negligently maintained and inspected the Piper Arrow, which permitted carbon monoxide to escape from the plane's engine (rather than from its mufflers at the end of its exhaust system) and to travel from the engine compartment into the cabin, causing Smith to become impaired and the plane to crash. In particular, the Plaintiff focuses on two small gouges on the exhaust port of the right front cylinder as the source of the leak. She contends that the gouges were made when a mechanic used some sort of tool to pry the exhaust stack from the exhaust port during the 100-hour/annual inspection, or when that part was improperly installed at the

⁸⁷Under the law of Ohio, the plaintiff has the burden of proving the elements of a negligence claim by the preponderance of the evidence. Woods v. Ohio Department of Rehabilitation and Correction, 130 Ohio App.3d 742, 744, 721 N.E.2d 143, 145 (1998).

conclusion of that inspection.⁸⁸ In addition to claiming that an employee of the Aero Club was negligent in gouging the exhaust port of the right front cylinder, the Plaintiff claims that other employees breached their duty of care in failing to conduct an adequate inspection of the aircraft, in order to discover the exhaust leak caused by the gouges. In response, the Government has raised a number of arguments, including contending that the evidence established that Smith was not impaired by carbon monoxide at the time of the crash. Above, this Court has found, as a matter of fact, that Smith was not so impaired. In other words, the Court has found that the alleged negligence of the Aero Club and its employees was not the proximate cause of the crash or Smith's death. What follows is the Court's explanation of that factual finding, which is supported by the following subsidiary findings, to wit: 1) there is no credible evidence that Smith was suffering from the effects of exposure to carbon monoxide at the time of the crash; 2) carbon monoxide did not leak from the engine of the Piper Arrow; 3) if carbon monoxide had leaked, it would have been immediately diluted by the air flowing over and around the engine; 4) there was no pathway by which carbon monoxide could have traveled from the engine compartment of that aircraft to its cabin; and 5) the fact that Smith's blood had a carboxyhemoglobin saturation level of 7%, when tested by the two IL 482 Co-Oximeters, does not establish that he was impaired from exposure to carbon monoxide. Indeed, the evidence established that the saturation level of COHb in Smith's blood was lower than 7%. 6) Finally, the

⁸⁸It will be remembered that the exhaust stack for the right front cylinder, in which the gouges are located, was removed and later sent to ESI for repairs.

Court explains its finding that Smith lost control of the aircraft, because he became disoriented, rather than as a result of being overcome by carbon monoxide.

1. Lack of Credible Evidence that Smith Was Suffering from the Effects of Exposure to Carbon Monoxide at the Time of the Crash

It bears emphasis that the fatal flight lasted only a few minutes. Consequently, if exposure to carbon monoxide from the Piper Arrow had caused Smith to become impaired, that event had to have occurred during the two legs of the flight from WPAFB to the Portage County Airport. In other words, Smith had to be suffering from such an impairment before he took off from that Airport. However, no credible evidence was presented that Smith acted in a manner which would indicate that he was suffering from a carbon monoxide impairment at the time of or before the accident. On the contrary, the evidence established that Smith was acting normally on November 24, 1993.

The Plaintiff attempted to establish that Smith was suffering the effects of exposure to carbon monoxide through Rugh's testimony concerning the manner in which Smith had landed the Piper Arrow at the Portage County Airport on November 24, 1993. During his testimony, Rugh described that landing as being similar to how a fighter jet would make a landing, very fast with rounded turns. Rugh testified that the landing startled him. For reasons which follow, the Court does not credit Rugh's testimony in that regard. Shortly after the accident, Rugh wrote to the NTSB informing that agency that the flight had been uneventful. At that time, the NTSB was investigating the cause of the accident; however, Rugh

did not indicate that Smith had landed the Piper Arrow like a fighter jet, very fast and in a manner which had startled him (Rugh). There is a significant reason to believe that the description of the flight Rugh gave to the NTSB is more accurate than the one about which he testified at trial. During trial, Rugh testified that, between the time of the crash and the trial, he had spent a significant amount of time thinking about the events surrounding that incident and that he had attempted to find out all that he could about the crash, including obtaining information from Plaintiff's counsel. When Rugh wrote to the NTSB, the events of November 24, 1993, were fresh in his mind. In contrast, his trial testimony was not only given more than five years later, but it also was quite possibly colored by his investigation of the events. Quite simply, the Court cannot be certain that Rugh testified about his memory of what had happened, rather than providing his perception of what must have occurred based upon what he had learned from his investigation. Moreover, it bears noting that Rugh did not indicate that he was suffering from any of the effects of exposure to carbon monoxide, after having flown with Smith from Columbus to Ravenna.

In addition, Plaintiff's counsel asked Rugh questions about the transcripts of Smith's conversations with the control tower, before he took off from the Portage County Airport.⁸⁹ Rugh interpreted transcripts of that conversation as indicating that Smith was not acting normally, since he failed to repeat everything which the controller in the tower had said to him. In Rugh's experience, Smith routinely

⁸⁹It bears emphasis that Rugh was not in the Piper Arrow when those conversations took place.

repeated what the controller had said to him. Assuming for sake of argument that uncharacteristic communication with the control tower by Smith would indicate that he was suffering the effects of exposure to carbon monoxide, this Court cannot find that Rugh's testimony established that Smith's communications were uncharacteristic or in any manner improper. When Smith took off from the Portage County Airport he was flying under IFR rules. Rugh was an inexperienced pilot without an IFR rating. Prior to November 24, 1993, he had never flown with Smith on a plane being flown under IFR conditions. He had not flown in a private aircraft from that day to his testimony at trial. Thus, the typical communications between Smith or any pilot and a control tower, prior to a departure under IFR conditions, is not something with which Rugh had experience. Moreover, Rugh's assertion that Smith improperly failed to repeat information to the tower controller is belied by the fact that the controller indicated that Smith had properly repeated the message. In addition, the testimony of Bernard Coogan ("Coogan"), an expert witness for the United States, testified that Smith's communications with the tower prior to his departure from the Portage County Airport were appropriate. Unlike Rugh, Coogan is an eminently qualified pilot, with over 27,000 hours of flight experience. Accordingly, the Court finds that Smith's communications with the control tower, prior to his departure from the Portage County Airport, do not show that he was suffering the effects of exposure to carbon monoxide.⁹⁰

⁹⁰The Plaintiff has pointed to one other piece of evidence to support her assertion that Smith was acting abnormally on November 24th, thus evidencing an exposure to and impairment from carbon monoxide. The Plaintiff points to the fact that Smith failed to sign Rugh's pilot log book, after they had reached the Portage County Airport. Two factors convince this Court that Smith's failure in that regard

In addition to the absence of any evidence that Smith was acting in a manner which would indicate that he was impaired from exposure to carbon monoxide, his actions prior to his departure from the Portage County Airport belie such an assertion. After the Piper Arrow had landed at Ravenna, Smith checked the level of the oil in the engine and added a quantity, demonstrating his capacity to concentrate. Moreover, Rugh testified that Smith did not complain of any effects of exposure to carbon monoxide, such as a headache, or indicate that he was suffering from any mental or physical impairment.⁹¹ As Rugh indicated in his letter to the NTSB, Smith had been happy and affable on November 24th and had been totally in control.

2. Carbon Monoxide Did Not Leak from the Engine of the Piper Arrow

The Court does not rest its factual finding that Smith was not impaired from exposure to carbon monoxide at the time of the crash on the fact that he had been acting normally, rather than in a manner which would have been indicative of such an impairment. On the contrary, based upon the evidence presented at trial, the Court finds that the Plaintiff has failed to prove by the preponderance of the evidence that carbon monoxide leaked from the engine of the Piper Arrow. The

does not demonstrate that he had been exposed to or was impaired from carbon monoxide. First, the Plaintiff failed to present any evidence that such a failure is a symptom of exposure to carbon monoxide. Second, there is no evidence that Rugh asked Smith to sign his log book.

⁹¹Indeed, Rugh, who had flown with Smith from Columbus to Ravenna, similarly did not experience any effects of exposure. In addition, Rugh did not recall smelling anything unusual, such as exhaust, while he was in the Piper Arrow.

Plaintiff's theory is that carbon monoxide escaped from the engine of that aircraft by way of two gouges located next to each other in the exhaust port of the engine's right front cylinder. The Plaintiff asserts that the gouges were caused by a tool which had been used to pry the exhaust stack from the cylinder, during the 100-hour/annual inspection which occurred during the fall of 1993. The Government, on the other hand, contends that the gouges were caused by the crash. The evidence convinces this Court to find that the crash caused the two gouges on the exhaust port of the right front cylinder.

During the 100-hour/annual inspection conducted in September and October, 1993, the engine's four cylinders were removed and sent to Clydesdale to be overhauled. No one at that facility reported the existence of two gouges on the exhaust port of the right front cylinder. In addition, Webber, who participated in and oversaw the removal of the exhaust system, testified that he most probably removed the front right cylinder from the engine, prior to its delivery to Clydesdale. He indicated that he had never had any difficulty removing an exhaust stack from an exhaust port and that he had not seen other mechanics experiencing such a problem. According to Webber, there was no need ever to use a tool to pry an exhaust stack from an exhaust port. Webber also testified that he had most probably reinstalled the exhaust system and that, during that process, he had not seen gouges on a cylinder port and that he had not used a tool to attempt to force the stack back into place. Moreover, Brunner inspected the cylinders upon their return from Clydesdale and did not observe the two gouges on the exhaust port of the right front cylinder. Finally, on November 22, 1993, two days before the

accident, the Aero Club completed a 50-hour inspection of the Piper Arrow. Leach, who performed that inspection, testified that, when he took the top cowling off the aircraft to examine its engine,⁹² he did not observe any evidence of exhaust leaks.

The foregoing evidence, which this Court credits, casts considerable doubt on Plaintiff's theory that the gouges were created during the 100-hour/annual inspection. However, the Government presented additional evidence which supports its assertion that the gouges were caused by the crash, rather than having occurred during that inspection. When the plane crashed, its nose came into contact first with trees and then with a hanger and, finally, the ground. The manner in which the plane crashed exerted great force on the engine. That force caused one of the studs or bolts, by which the exhaust stack that had been attached to the front right cylinder, to be torn away. As the studs were torn away, they caused the two gouges.

The combined weight of the evidence demonstrates that the gouges were caused when the Piper Arrow crashed.⁹³ As a consequence, this Court has so found.

⁹²Leach did not remove the bottom cowling.

⁹³In support of her assertion that the gouges occurred during the 100-hour/annual inspection, the Plaintiff relies upon the testimony of one of her expert witnesses, Larry Dehus ("Dehus"). Dehus testified that he examined the gouges with a microscope and concluded that they were caused by a tool being moved inward. Dehus also testified that the discoloration on the exhaust port and gasket retainer were caused by exhaust fumes.

3. If Carbon Monoxide Had Leaked, it Would Have Been Immediately Diluted by the Air Flowing around the Engine

The engine of the Piper Arrow is air-cooled, as a result of which significant amounts of air are continuously flowing around the aircraft while it is being flown. As air enters the top of the engine, it collides with a baffle which forces it down and over the cylinders.⁹⁴ Fins, which dissipate heat, are on the exterior of the cylinders. Thus, a significant amount of air continuously passed over the area of the engine from which, according to the Plaintiff, carbon monoxide had leaked. Even if this Court were to find that such a carbon monoxide leak existed (which it has not), the air would have so diluted that carbon monoxide that it could not have posed a danger. This point was amply demonstrated by testimony from one of the Government's expert witnesses, Edward Holmes ("Holmes"). Using figures supplied by Lycoming, the manufacturer of the engine, Holmes calculated that an engine would produce 1,400 pounds of exhaust gases per hour and that 6% of those gases would be carbon monoxide. Therefore, the engine would produce 84 pounds of carbon monoxide per hour. Of course, the Plaintiff contends that the carbon monoxide escaped from only one of the engine's four cylinders. Thus, that one cylinder would have produced 21 pounds of carbon monoxide in a given hour. Since Plaintiff's claim is predicated upon the theory that carbon monoxide escaped from the two gouges, Holmes did not conclude that all 21 pounds of carbon monoxide generated within an hour escaped into the engine compartment. Rather,

⁹⁴Given that the combustion occurs in the cylinders, they are the source of the heat generated by the engine.

he assumed that carbon monoxide would flow from the gouges at the same rate which it would be expelled through the aircraft's exhaust system. Holmes thus computed that approximately 0.043 pounds of carbon monoxide could have escaped through the two gouges per hour. He then compared that amount of carbon monoxide to the volume of air, 4950 pounds per hour, which would have passed over the engine, and concluded that the carbon monoxide would comprise slightly less than 9 parts per million of the resulting mixture.⁹⁵ FAA regulations concerning ventilation of an aircraft's cabin provide that the concentration of carbon monoxide cannot exceed one part per 20,000, which is equivalent to 50 parts per million. See 14 C.F.R. § 23.831(a). The Court finds Holmes' testimony to be credible in that regard and concludes that the concentration of any carbon monoxide which leaked from the two gouges on the exhaust port would have been so diluted that it could not have harmed anyone.⁹⁶

⁹⁵The figure of slightly less than 9 parts per million is the concentration of carbon monoxide in the engine compartment. The carbon monoxide to which one could be exposed would be diluted further when it entered the cabin, by being mixed with the air therein.

⁹⁶The Plaintiff has attacked Holmes' calculations. See Doc. #211 at 31 and Appendix A. Putting aside for a moment that Plaintiff's analysis of Holmes' computations, an analysis contained in Appendix A, is subject to being questioned, given that it is predicated upon the assumption that Smith was overcome by CO and that, therefore, Holmes' computations must be wrong since they lead to the opposite conclusion, this Court cannot agree with Plaintiff's premise that Holmes' testimony lacks persuasiveness. The Plaintiff has not pointed to any evidence which would refute or contradict any of his computations, nor has she asserted that his analytical framework lacks reliability. Accordingly, the Court rejects the Plaintiff's assertion that Holmes' testimony is without persuasive force.

In sum, the Court finds that, even if carbon monoxide had escaped from the engine of the Piper Arrow, through the two gouges on the exhaust port of the right front cylinder, that gas would have been so diluted by the cooling air that was passing over and around the cylinders, that it could not have posed a danger to anyone in the cabin of that aircraft.

4. There Was No Pathway through which Carbon Monoxide Could Have Traveled from the Engine Compartment of the Piper Arrow to its Cabin

However, even if the Court were to find that the Plaintiff established that carbon monoxide had escaped from the engine of the Piper Arrow, the Court would not find that said gas traveled from its engine compartment into the cabin of that aircraft. The Plaintiff argues that carbon monoxide, which had escaped from the engine of the Piper Arrow, traveled into the cabin by way of the heater hoses or ducts, the heater intake shroud boot and/or through holes in the firewall. For reasons which follow, this Court finds that the Plaintiff has failed to prove by the preponderance of the evidence that carbon could have traveled from the engine compartment to the cabin through any of those paths.

The Plaintiff argues that the evidence shows that carbon monoxide could have used the heater hoses or ducts as a pathway by which that gas could have traveled to the aircraft's cabin. In particular, the Plaintiff contends that the ducts were old and worn and that there were microscopic holes in one hose or duct, through which carbon monoxide could have entered. In addition, Plaintiff points to evidence that there was an oily residue inside a duct. According to Plaintiff, if oil

could enter a heating duct through a fissure, carbon monoxide could also. The Court cannot agree with Plaintiff. Webber inspected the hoses or ducts during the 100-hour/annual inspection, which was completed on October 13, 1993. According to his testimony, the hoses did not have holes in them, nor were they in a torn or ripped condition at the time of that inspection. Webber's testimony concerning the condition of the hoses is supported by that from Holmes, one of the Defendant's expert witnesses. Holmes testified and explained that the holes which can now be observed were caused during the crash, when bent wires located inside the hoses punched through upon impact.⁹⁷ The Court credits the testimony of Webber and Holmes. Moreover, it should be noted that the air pressure inside the hoses or ducts was greater than that inside the engine compartment, which would have made it impossible for carbon monoxide to leak into the hoses.⁹⁸ In other words, the gases already inside the hoses would have escaped through any holes, rather than carbon monoxide entering through a hole in a hose.

Plaintiff also contends that the firewall which separated the engine compartment from the cabin could have provided a secondary pathway through which exhaust gases containing carbon monoxide might have migrated into the cabin. In support of this contention, the Plaintiff relies upon the testimony of one of her expert witnesses, Lolly, who testified that gases from the engine compartment of a single-engine airplane (including carbon monoxide) are drawn

⁹⁷The Court finds that the oil entered the hose during the crash.

⁹⁸When the Piper Arrow was in operation, ram air would continuously enter the heater intake shroud boot. When the heater was in use, heat generated by the engine would heat the ram air.

into the cockpit of such an aircraft, because the cabin of such an aircraft operates at a lower pressure than the cabin. That testimony does not cause the Court to find that carbon monoxide traveled from the engine compartment to the cabin of the Piper Arrow. Based upon the evidence presented, this Court has found that a pathway, by which carbon monoxide could have migrated from the engine compartment to the cabin, did not exist. Moreover, if there was an exhaust leak in the engine of the Piper Arrow and that exhaust was being drawn into the cabin, it is logical that someone flying in the plane would have smelled the exhaust, which was comprised of more than carbon monoxide. There is, however, no evidence that anyone smelled exhaust in the cabin of the Piper Arrow.

Finally, it bears emphasis that the Piper Arrow had been operated for more than 50 hours, between the time it was put back in service after the 100-hour/annual inspection and the crash on November 24, 1993.⁹⁹ During that entire period of operation, no one flying in that aircraft complained that he or she had smelled exhaust fumes inside the cabin or that he or she had suffered any of the effects of exposure to carbon monoxide. If exhaust was leaking from the engine of that plane and, further, if there was a pathway by which that exhaust could have traveled from its engine compartment to its cabin, one would expect that someone would have smelled fumes or suffered from the effects of exposure to carbon monoxide when the plane was operated prior to the crash.¹⁰⁰

⁹⁹It will be remembered that a 50-hour inspection of the aircraft was completed two days before the crash.

¹⁰⁰It bears emphasis that Rugh, who had flown with Smith from Columbus to Ravenna immediately prior to the accident, did not complain of smelling exhaust

5. The Fact That Smith's Blood Had a Carboxyhemoglobin Saturation Level of Less than 7% Does Not Establish that He Was Impaired from Exposure to Carbon Monoxide

The measure of the saturation level of carbon monoxide in a person's blood is expressed in the percentage of carboxyhemoglobin or COHb. At the request of the NTSB, samples of Smith's blood were tested by the AFIP on two IL 482 Co-Oximeters. The results of those tests were 6.5% and 6.6%, which were rounded up to 7%. Levine conducted a study, where he compared the readings of carboxyhemoglobin obtained from postmortem blood samples obtained using the two IL 482 Co-Oximeters, which had been used to measure the saturation level of COHb in Smith's blood, with readings from using the more accurate method of gas chromatography. Levine found that the readings from the more accurate method were lower in 47 out of 48 instances, in which the level of COHb was below 10%. This Court credits Levine's testimony, which was based upon his scientifically sound study, conducted independently of this litigation. The Court's finding in that regard is also supported by Benignus' testimony, which was based upon that given by Levine and Berry, to the effect that a pilot would have to have a COHb saturation level of at least 18% in his blood in order to be impaired. Moreover, when a person is exposed to carbon monoxide, the normal mechanism of the body is to increase the flow of blood to the brain, in order to compensate for the displaced oxygen. The increased blood flow results in the amount of oxygen getting to the brain remaining constant. It is only when the COHb level reaches

fumes or of suffering any of the effects of exposure to carbon monoxide.

30% that the increased blood flow to the brain is unable to compensate for the level of carbon monoxide in the blood reaching the brain.

6. Smith Lost Control of the Piper Arrow, Because He Became Disoriented

When he took off from the Portage County Airport in the Piper Arrow, Smith was sitting in the right front seat. The pilot normally sits in the left hand seat. As a consequence, Smith, who was flying under IFR rules, had a more difficult time viewing the main instruments which were in front of the left seat, in which the pilot normally sits, because, rather than looking head-on at the instrument, his line of vision to the instruments was at a greater angle. In addition, Smith had neglected to secure the upper latch on the right cabin door, as a result of which he became distracted by the sound of the wind coming through the open latch and the plane being buffeted by it.¹⁰¹ Smith was attempting to land at the Portage County Airport, in order to secure the latch, when he became disoriented by the sound of the wind, the plane being buffeted by it, flying in clouds, and crashed the Piper Arrow.

The Court's finding is supported by Novak's testimony. Shortly after Smith had taken off, Novak, an aircraft mechanic, was working in a hanger at the Portage County Airport. He heard the engine of an airplane making power changes and went outside to investigate. Novak described the sound being as if the pilot of the plane were looking for the airport. Novak explained that on an overcast day, a pilot

¹⁰¹The upper latch was located near Smith's right ear. According to the manufacturer's manual for the Piper Arrow, a person in the right seat must turn his head away from the instrument panel, in order to secure the door latches.

attempting to land will see the runway and reduce the power to the aircraft, only to go into a cloud and increase power for fear of missing the runway. Because of the low overcast clouds, Novak was not able to see the plane, although he did hear one or two additional power changes. When the plane came through the clouds, Novak saw that its landing light had been turned on. Although the plane was level, it did not appear to Novak to have any forward motion. It also appeared to be falling vertically. Shortly thereafter, Novak saw the nose of the plane tip toward the ground and the plane fall to the ground nose first.

All of the foregoing has caused the Court to find that Smith crashed the Piper Arrow because he had become disoriented, while trying to land at the Portage County Airport, in order to secure the upper, right cabin door latch.

III. Conclusions of Law

1. This Court has subject matter jurisdiction over the Plaintiff's claim against the United States, pursuant to 28 U.S.C. § 1346(b), the FTCA.

2. Under the FTCA, the United States is liable, subject to exceptions which are not applicable in this litigation, for the harm caused by the negligence of the employees of its agencies, departments and other entities, including non-appropriated fund instrumentalities such as the Aero Club. Consequently, the Defendant is responsible for the injuries caused by the negligence, if any, of the employees of the Aero Club.

3. Under the FTCA, this Court is obligated to apply the law of the state in which the incident giving rise to the litigation occurred. 28 U.S.C. § 2674; Premo, supra. Given that the accident occurred at the Portage County Airport, located near Ravenna, Ohio, this Court must apply Ohio's substantive law.

4. Under Ohio law, a plaintiff seeking to recover under a negligence theory must establish the following three elements, to wit: (1) that the defendant owed the plaintiff a duty, (2) that the defendant breached that duty, and (3) that the breach of the duty proximately caused the plaintiff's injury.¹⁰²

5. The existence of a duty is a question of law. In accordance with Ohio law, the Government owed Smith the duty of reasonable care.

6. Plaintiff contends the Defendant breached the duty of reasonable care by the manner in which its agents and employees conducted the 100-hour/annual inspection of the Piper Arrow. According to Plaintiff, the negligence of the Defendant's employees and agents permitted carbon monoxide to enter the cabin. That gas overcame Smith, Plaintiff's theory continues, which resulted in his crashing the plane. Above, the Court has found that the employees and agents of the Government did not breach the duty of reasonable care they owed to Smith.

¹⁰²This is a wrongful death action predicated upon the Defendant's alleged negligence; however, the same elements are applicable in such an action.

Therefore, Plaintiff has failed to establish the second element of her negligence claim.

7. Above, this Court has found that the aircraft being flown by Smith crashed because he became spatially disoriented in the clouds above the Portage County Airport, shortly after taking off, and lost control of that aircraft, rather than as a result of exposure to carbon monoxide.

Based upon the foregoing, as well as its previous Decisions (Doc. #71 and #157), the Court directs that judgment be entered in favor of the Defendants and against the Plaintiff.

The captioned cause is hereby ordered terminated upon the docket records of the United States District Court for the Southern District of Ohio, Western Division, at Dayton.

April 26, 2012



WALTER HERBERT RICE, CHIEF JUDGE
UNITED STATES DISTRICT COURT

Copies to:

All counsel of record.